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ABSTRACT

To assess the purpose and role of agriculture and agribusiness education in Iowa and develop curriculum and administrative guidelines based on those principles a four-phase project was conducted. In phase I seven basic principles were written for agriculture and agribusiness education. These were reviewed by agricultural educators and validated by practitioners in the field. In phase II a forum was held to identify current and emerging trends in related disciplines that would influence the direction and content of agriculture and agribusiness programs in the future. Appropriate results were then incorporated into the statement of principles. Revised principles were reviewed by agricultural educators in Iowa and accepted for distribution. Phases III and IV were devoted to development of curriculum and administrative guidelines for implementing the basic principles in public school systems. Program goals, curriculum and instructional level objectives, suggested subject matter, and learning activities were developed for each program function and each instructional level in the school. Materials were coordinated with learner needs. Administrative guidelines were developed for their use. Materials are currently being prepared for field testing in three Iowa school systems. Some project materials and the 175-page third-party evaluation are appended. The basic principles for agriculture and agribusiness education are included here and are also available as a separate document (CE 013 245). Also available separately but not included in the report are the addresses presented at the phase II forum and a summary of the forum. (JT)

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ED147476

STRATEGIES FOR REVISION OF CURRICULUM AND PROGRAM RESTRUCTURING OF VOCATIONAL AGRICULTURE IN IOWA

Final Report

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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1977

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Summary of Project

It was the purpose of this project to assess the purpose and role of agriculture and agribusiness education programs in Iowa as a part or component of the educational process and describe its approach to meeting current and future individual and societal needs. More specifically, the project was designed to: 1) determine the basic principles undergirding agriculture and agribusiness education in Iowa; 2) evaluate these principles in light of current and projected social, economic, occupational, cultural, and educational needs and changes in society; 3) develop curriculum guidelines based on the basic principles determined to undergird agriculture and agribusiness education; and 4) develop administrative guidelines for implementing the curriculum materials in local school settings.

The project was conducted in four phases with each phase addressing itself to satisfying one of the project objectives. In Phase I, seven basic principles were written for agriculture and agribusiness education in Iowa. These principles were reviewed by professional agricultural educators and validated by practitioners in the field and established as being the important constructs upon which agriculture and agribusiness programs in Iowa should be based. In Phase II, a forum was held to identify current and emerging trends in related disciplines that would influence the direction and content of agriculture and agribusiness education programs in Iowa in the future. Theories and underlying concepts supporting these trends were incorporated into the statement of principles developed in Phase I. The revised statement of principles were reviewed by agricultural educators in Iowa and accepted for distribution among school systems in Iowa and the nation.

Phase III and IV was devoted to the development of curriculum and administrative guidelines for implementing the basic principles in Iowa public school systems. Program goals, curriculum and instructional level objectives, suggested subject matter, and learning activities were developed for each program function and each instructional level in the school. These materials were coordinated with learner needs at each level. Administrative guidelines were developed for guiding the use of these materials in local school settings. Currently these materials and guidelines are being prepared for field testing in three Iowa school systems. Appropriate revision will be made of these materials after the tests are concluded and the materials submitted for general distribution and use.

Described below are the important conclusions and recommendations derived from project activities.

The design of the project was adequate to lead to satisfying the objectives as stated in the proposal. One difficulty, however, that was experienced was that insufficient time had not been allowed to adequately carry out project activities. Had it not been for the time extensions granted the project, only partial completion of the last two objectives would have been attained. In such endeavors in the future, ample time should be allowed for the slow, rather tedious task of curriculum development.

The problem dealt with in this project was a "real" problem that confronted a real need facing agriculture and agribusiness education in Iowa. Because of the urgency of finding solutions to this problem, project staff members were able to involve others in carrying out project activities with great ease.

Based on the outcomes of this project, the function and role of agriculture and agribusiness education must be expanded in Iowa and throughout the nation. In light of current and future societal trends and student needs, the program cannot focus only on the narrow purpose of preparing people for entry into an occupation in the agricultural industry. Emphasis must be placed on the significance of agriculture and food production in our national and internation life and the avocational interests of people in agriculture.

The study of agricultural concepts should not be limited to a three or four year course of study at the secondary level. It should be incorporated into existing programs of study at all grade levels and in all educational disciplines. Such an articulated approach to the study of this subject will enhance the development of the basic and social skills of the learner as well as provide a high degree of relevance for such instruction through the study of agricultural problems.

Throughout the country, many educators in agriculture and vocational education are attempting to delineate and write philosophies for their programs. Based on the outcomes of this project, these persons should accept existing philosophies to guide their programs and devote their efforts to identifying those basic principles that undergird their programs that are based on the philosophy they accept for their programs.

Consideration should be given to the amount of "vocational" training that should be provided at the secondary level in agriculture. Experimentation should be initiated that would test the hypothesis that adequate vocational training can be provided at the secondary levels in two rather than four years and that the first two years could be open to a general study of agricultural problems and the significance of agriculture and food production as well as avocational interests in agriculture.

Agriculture and agribusiness education in Iowa is supported by seven specific guiding principles accepted by practioneers in the field, teacher educators, and state supervisory personnel. Instruction in agriculture and agribusiness education should exemplify these principles. A statement of these principles can be found in the supplementary materials submitted with this report.

Based on the evaluations of the basic principles described in this study, increased attention should be placed on the "general education" of the learner than has been the case in the past in agriculture and agribusiness education programs.

The social, psychological, and educational needs of the learner at each instructional level must be of first concern when developing and implementing curricula in agriculture and agribusiness education programs. Careful consideration should be made to avoid making subject matter and knowledge-for-knowledge sake the major goal of such education. It is the application of this knowledge to student needs and problems that must be of primary concern in all program planning and instruction.

Based on the outcomes of this project, it is recommended that in future projects of this type, extensive use be made of persons outside the profession in planning and conducting project activities. The degree of appropriateness of materials developed and outcomes achieved would not have been nearly as great had such persons not been involved with the project throughout its existence.

One dimension of the project that enhanced greatly its significance and usefulness was the use of specialists in educational philosophy and curriculum planning. These men (Drs. Tyler, Stanley, Clouse, and Swanson) brought an expertise to the project that could not have been achieved in any other way. Their contributions insured the development of project activities and materials that are rooted in sound educational theory and will contribute to their usefulness in the years ahead.

Strategies for Revision of
Curriculum and Program Restructuring
# of Vocational Agriculture in Iowa

Body of Report

Problem

With the passage of the Smith-Hughes Act of 1917, Iowa educators embarked upon the task of incorporating vocational agriculture programs in secondary schools throughout the state. Such programs had three controlling purposes. These were that vocational agriculture should: 1) fit young people for useful employment, 2) be less than college grade, and 3) be designed to meet the needs of persons over fourteen years of age who had entered upon the work of the farm or of the farm home. In 1931, six objectives were written and accepted by the profession to govern the direction of vocational agriculture programs. They were as follows:

1. Make a beginning and advance in farming.
2. Produce farm commodities efficiently.
3. Make farm products advantageously.
4. Conserve soil and other resources.
5. Manage a farm business.
6. Maintain a favorable environment.

The above objectives and purposes governed the program in Iowa until the early sixties. During this period of time, however, many social, economic, and technological changes were taking place in the agricultural industry, creating pressure for similar changes in vocational agriculture programs to keep abreast of industry needs.

In 1963, Congress passed the Vocational Education Act which allowed for legitimate change and broadened program goals and purposes in vocational agriculture. In addition to expanding and broadening the program, this act gave each of the states added flexibility in planning and developing programs that would respond to the needs being expressed in their own states. These changes were readily accepted by educators throughout Iowa and they initiated efforts in their schools that would carry out the intent of the new act.

Such efforts, born out of freedoms to plan and implement new innovative vocational agriculture programs, spurned a variety of approaches for conducting programs throughout the state. Many of these efforts have moved local programs in distinctly different directions. While it has been 14 years since the Vocational Education Act was passed, little change has actually taken place in these program thrusts. With only a little imagination, one can surmize what the impact of such individual efforts have had on a state-wide program effort. It was established at the beginning of this project that a real need existed to reassess the purpose and role of agriculture and agribusiness education programs in Iowa, both in the educational process and in meeting current and future societal needs. When satisfying this purpose, program content and structure could be identified that would make such a statewide and local program effort a viable force in meeting the needs of society and the students through enrollment in agriculture and agribusiness education programs in the years ahead.

Objectives:

The principal objectives of this investigation were to:

1. Determine the philosophic constructs of agricultural education and purposes for the vocational agriculture program in Iowa.
    - a. Survey the thinking of agricultural educators (vocational agriculture teachers, area school instructors, teacher educators and school administrators), students, community representatives and others relative to the philosophic constructs upon which they believe the vocational agriculture program is based and its overall and specific purposes.
    - b. Identify commonalities and differences in the thinking of the above groups.
    - c. Develop a current philosophy of vocational agriculture and its purposes as a segment of public education in Iowa.
2. Evaluate current philosophic constructs and program purposes in light of current and projected social, economic, occupational, agricultural and educational needs and changes in society.
    - a. Assemble leaders in the fields of education, psychology, philosophy, agri-business, sociology, anthropology, and related fields.
    - b. Review and analyze current program purposes as expressed by the groups described in Objective One, in light of projected social, agricultural, cultural, economic, educational and occupational changes over the next one, two, and three decades.
    - c. Develop a new philosophic base, definition, and statement of purposes for agricultural education and the vocational agriculture program in Iowa.
3. Develop curriculum guidelines based on philosophic constructs, definition, and purposes developed in Objective Two.
    - a. Develop curriculum and instructional level objectives, suggested subject matter content, learning activities and evaluation procedures.
    - b. Validate objectives, subject matter content, learning activities and evaluation procedures.
    - c. Generate new curriculum guidelines for agricultural education and vocational agriculture programs in Iowa.
4. Develop program structure to implement the curriculum guidelines identified in Objective Three.
    - a. Describe the current structure of state, area and local vocational agriculture programs in Iowa.
    - b. Identify and describe changes necessary to implement the curriculum guidelines identified in Objective Three.

Procedures:

The following paragraphs summarize the procedures and accomplishments of the project from its inception. The project was funded for the period July 1, 1975 through December 31, 1976. Two extensions were granted to complete project activities and the project closed officially on March 31, 1977.

Staff Employment. Upon receipt of grant funds on June 28, 1975, an official search began for qualified persons to fill the three staff positions provided for and described in the proposal. Two such persons, namely, Mr. James Leising and Mr. Thomas Archer, graduate students in agricultural education pursuing Ph.D. degrees at Iowa State University, were available and willing to accept two of the positions. Mr. Leising was employed on a full-time basis as Associate Director of the project. Mr. Archer was employed on a 3/4-time basis as one of the project coordinators. On December 1, 1975, Mr. John Magill, an agricultural education major working toward his M.S. degree joined the staff and was employed on a 1/2-time basis.

On May 31, 1976, Mr. Leising and Mr. Archer received their Ph.D. degrees. Mr. Archer terminated his employment with the project on June 1, 1976 and Mr. Leising terminated his employment on July 1, 1976. Effective June 1, Mr. Magill was moved from 1/2-time to 3/4-time and accepted the Associate Director position vacated by Mr. Leising. Mr. Richard Foster, a vocational agriculture teacher at Clarinda, Iowa was employed on July 1, 1976 to assume the duties left by Mr. Archer and Mr. Richard Degner, a graduate student in agricultural education pursuing a M.S. degree filled the 1/2-time position vacated by Mr. Magill. John Magill, Richard Foster, and Richard Degner remained with the project to its conclusion.

Advisory Committee and Consultants. Immediately after the appointment of staff members, the staff established an advisory committee to monitor project activities and make suggestions that would improve project activities and direction. Persons consenting to serve on this committee and their area of specialization are identified below. It should be noted that they represented those educational areas and instructional levels in which project activities were planned. This committee met frequently during the initial days of the project. Later, they met on a monthly basis.

Advisory Committee for the Research Project Titled
"Strategies for Revision of Curriculum and Program
Restructuring of Vocational Agriculture in Iowa

Dr. Harold Crawford	Professor and Head, Agricultural Education
Dr. Tony Netusil	Professor, Professional Studies Educational Statistics
Mr. Clarence Bundy	Professor Emeritus, Agricultural Education
Dr. Elenore Kohlmann	Professor, Home Economics Education Curriculum Development
Dr. George Kizer	Professor, Professional Studies Educational Philosophy
Mr. James Athen	Assistant Director Career Education Division Iowa Department of Public Instruction
Mr. Emeron Dettmann	Consultant, Elementary-Secondary Services Agriculture Iowa Department of Public Instruction
Mr. Reginald Soldwish	Vocational Agriculture Instructor South Hamilton Community Schools Jewell, Iowa
Mr. Joseph White	Agri-business Instructor Ellsworth Community College Iowa Falls, Iowa

As a result of suggestions of this committee, three outside consultants were invited to monitor project activities and make suggestions that they felt would strengthen the project. Dr. Ralph Tyler, Dr. Gordon Swanson, and Dr. William Stanley consented to do so and have worked with the project staff on both a formal and informal basis throughout the remainder of the grant period. Their input greatly enhanced the effectiveness and usefulness of project activities.

Phase I. The first objective of the project proposal stated that project activities should lead to "determining the philosophic constructs of agricultural education and purposes for the vocational agriculture program in Iowa." This objective became Phase I of the project and all efforts during the period July 1, 1975 through January 15, 1976 were devoted to satisfying this objective.

Project staff members, assisted by advisory committee members and project consultants, developed a statement describing six basic principles that they believed undergirded agriculture and agribusiness education in Iowa. A copy of the statement, as drafted by this group is included in Appendix A identified as "Exhibit A." This statement was reviewed and refined by secondary and post-secondary agriculture teachers in Iowa and submitted for additional review to ten teacher educators and state supervisors in other states. Those out-of-state reviewers are identified below. As a result of these reviews, appropriate revisions were made in the initial statement.

Out-of-State People Who Reviewed Basic Principles Statement

Dr. Ralph Bender, Head
Agricultural Education Department
Ohio State University
Columbus, Ohio

Dr. Donald Meaders
Agricultural Education
Michigan State University
East Lansing, Michigan

Dr. James Horner
Agricultural Education Department
University of Nebraska
Lincoln, Nebraska

Dr. Don Priebe
Agricultural Education Department
North Dakota State University
Fargo, North Dakota

Dr. Donovan Coil, Head Consultant
Biological & Agricultural Occupations
Illinois Dept. of Public Instruction
Springfield, Illinois

Mr. Donald Erickson, Consultant
Vocational Agriculture
Department of Public Instruction
Bismarck, North Dakota

Dr. Milo Peterson
Agricultural Education Department
University of Minnesota
St. Paul, Minnesota

Dr. James Dougan, Head
Agricultural Supervisor
Ohio Department of Public Instruction
Columbus, Ohio

Dr. Dean Prochaska, Consultant
Agricultural Education
State Board of Vocational Education
Topeka, Kansas

Mr. Paul Day, Supervisor
Vocational Agriculture
Department of Public Instruction
St. Paul, Minnesota

In the main, the changes made in the statement dealt with clarifying wording and phraseology. A summary of their comments is presented in Appendix A as "Exhibit B." One major change that was suggested in the reviewers' remarks was that of including in the statement, a paragraph dealing with the democratic orientation of the program. This suggestion was dealt with later in the process of developing the statement as it was believed, by consultants and staff, that concepts inherent in this broad societal area were inherent in the statement in its entirety.

On September 25 and 26, 1975, Dr. William Stanley met with project staff members to review and critique the statement as revised by project staff. As a result of his urging, the organization and titling of the statements were changed and an additional principle statement was added entitled "Interrelationships of Agriculture." The revised statement of basic principles including the seventh principle statement is included in Appendix A marked as "Exhibit C."

Because of concerns, on the part of project staff and advisory committee members, over the possibility that a descrepancy could exist between theory and practice relative to this statement, it was decided that local educational practitioners should be surveyed to ascertain whether they accepted these principles as being important components of their programs and agriculture and agribusiness programs throughout Iowa. The decision to survey only educational practitioners, those persons most clearly related to and having the greatest impact on the instructional content of agriculture and agribusiness programs was dictated by a lack of funds to adequately identify and survey other community and state groups associated with the program.

To adequately assess individuals relative to their thoughts on each principle, sub-principles (illustrations of how each principle was dealt with in local programs) were developed for each principle. These illustrations were developed by a panel of 21 local and community college agriculture teachers. The list of sub-principles were reviewed and refined and put into questionnaire form. The questionnaire was pretested and sent to a sample of 800 secondary and post-secondary agriculture teachers, superintendents, principals, secondary and post-secondary students, secondary and post-secondary school board members, teachers of other subjects in secondary and post-secondary schools, teacher educators, and state supervisors of agricultural education. Responses were received from 640 respondents (80%). Sub-principles included in the survey for each of the basic principles are identified in Appendix A marked as "Exhibit D."

Results of the responses of these groups substantiated the hypothesis that the seven principles developed by the project staff and advisory committee members, were in fact, those principles that should support agricultural and agribusiness education in Iowa. A summary of the results by principle and group surveyed, is presented in Appendix A marked as "Exhibit E."

A copy of the questionnaire used to gather the data is provided in Appendix A marked "Exhibit F."

With the validation of the seven princples, Phase I of the project was concluded on January 15, 1976.

Phase II. The second objective of the project proposal became Phase II of the project. This objective stated that it was the purpose and intent of the project to "evaluate current philosophic constructs and program purposes in light of current and projected social, economic, occupational, cultural and educational needs and changes in society.

On November 1, 1975, project staff members, assisted by the advisory committee, began to lay plans for the completion of this phase of the project. After considerable discussion and study, it was decided that the most effective way to satisfy this objective was to invite the most noted professionals in various disciplines related to agriculture and agribusiness education to the Iowa State University campus and ask them to identify and discuss those significant future trends (needs and changes) that they believed would develop in their discipline in the years that lie ahead. This discussion took place in a forum atmosphere on the Iowa State University campus on February 24 and 25, 1976. The forum known by the title "Project 2000 Forum" was announced throughout the state and national and interested persons invited to attend. A copy of the brochure announcing the forum is included in Appendix B marked "Exhibit A."

As the Forum speakers discussed trends in their disciplines, a panel of agricultural educators gleaned those trends that would have a bearing upon agriculture and agribusiness education programs and suggested implications for the program as a result of these trends. Included among this panel of agricultural educators were secondary and post-secondary agriculture teachers, teacher educators in agriculture, and state supervisors of agricultural education. A copy of the "Project 2000 Forum" program is included in Appendix B under "Exhibit B." A copy of the proceedings of the Forum is included in the supplemental materials submitted with this report. Attention is called to the last two sections of the summary beginning on page 70. Identified on these pages are the needs and changes (trends) anticipated in various areas based on the comments of the forum speakers. Attention is also called to the program outline in the beginning pages of this document where the listening panelists and presenters are identified.

On February 26, project staff members met with Dr. William Stanley to review the trends and implications generated by the listening panel of the agricultural educators during the Forum. Each trend was studied to determine whether it was inherently a part of the original statement of philosophic principles. If not, the Basic principles were revised to include content and substance that would speak specifically to the need as expressed in the trend(s) identified. In addition to these revisions, three functions for agriculture and agribusiness education programs were identified, stated and became a part of the overall statement of basic principles. The development of these three functions, on the part of project staff members, came as a result of urgings of forum speakers and the concepts inherent in the statement of basic principles. In addition, the decision was made to expand agriculture and agribusiness education to include activities that would involve elementary, junior high, and other senior high students and teachers as well as vocational agriculture programs.

The statement was reviewed by representatives from the Iowa Department of Public Instruction, local teachers and staff members in agricultural education at Iowa State University and polished for publication and general distrubtion. A copy of the statement entitled "Basic Principles of Agriculture and Agribusiness Education" is included in the supplemental materials with this report. Also, among these materials is a copy of the transcribed addresses of the Forum speakers and listening panel member reactions.

Phase III & IV. Immediately upon completion of Phase II, work began on developing curriculum and administrative guidelines for implementing the basic principles for agriculture and agribusiness education. As was the procedure in the first two phases of the project, Phases III and IV dealt with work suggested in objectives three and four of the project proposal. It was the purpose of these objectives to: 1) develop curriculum guidelines based on philosophic constructs, definitions, and purposes developed for Objective Two and 2) develop program structure to implement the curriculum guidelines identified for Objective Three. Tyler's model for curriculum development was the vehicle used to guide the development of these materials.

The first activity in Phase III of the project involved a thorough review of the literature to identify the basic needs of the learner at four instructional levels -- lower and upper elementary, junior and senior high school. These needs were listed and catagorized as to whether they were sociological, psychological, or educational. Careful attention was given to identifying needs common among all age groups as well as the specific needs of each group of learners.

The list of learner needs was submitted to a panel of five teachers at each educational level for review and critique as to their appropriateness in describing the needs of students that they taught. Upon receipt of their critiques, project staff members revised the list of needs to reflect the reviewer's suggestions and used this list in developing curriculum materials later in this phase of the project. A copy of these needs is included in Appendix C marked as "Exhibit A."

After student needs had been identified, project staff turned their attention to identifying the subject matter that should be included in the curriculum materials to carry out the intent of the basic principles developed in Phase I and II. The first attempt at determining this content was to use the subject matter normally included in secondary vocational agriculture programs. Local elementary, junior, and senior high school teachers were assembled on the campus of Iowa State University in a two day conference to determine which technical agriculture concepts normally taught in vocational agriculture programs could be introduced and taught on an articulated basis at the four instructional levels. The work of this group was summarized and attempts were made to structure these concepts with the learner needs identified earlier. This approach had the overall impact of placing total emphasis on subject matter rather than on satisfying student needs and meeting the requirements of the three functions identified in Phase II of the project.

At this point (December 12, 1976), Dr. Ralph Tyler, Dr. William Stanley, and Dr. James Clouse, Head of Agricutlural Education at Virginia Polytechnic Institute met with staff members to review the progress of the project and make suggestions on the process of developing curriculum materials underway in the project. Their suggestion was that we should identify 25 to 30 concepts that would integrate the functions described in the basic principles statement into public school curricula and build our curriculum around these concepts. After considerable discussion, it was decided to follow their suggestion.

A new approach was developed by project staff and subject matter was developed around the three functions for agriculture and agriculture business education identified in Phase II and student needs identified earlier in this phase of the project. Beginning with the three functions and the statement of learner needs, program goals were generated, curriculum and instructional level objectives were developed for each function and suggested learning activities were developed for each of the instructional objectives. A schema, illustrating the approach followed in developing the curriculum materials, program goals, and curriculum level objectives (25 concepts suggested by the curriculum consultants) for each function, and instructional objectives for the first curriculum objective under function three with suggested subject matter and learning activities are included in Appendix C marked as "Exhibit B." Instructional objectives and suggested learning activities were developed for each of the curriculum level objectives identified for each of the three functions. Instructional levels at which each concept was to be introduced in the learning process were assigned to each instructional level objective. The complete set of curriculum materials is currently being revised and printed for use in field testing in three Iowa public schools during the next 12 month period. This phase of the project has been funded by the Career Education Division of the Iowa Department of Public Instruction. With appropriate revisions as a result of the field testing of the materials, copies of the curriculum materials will be submitted to the

U.S.O.E. for distribution to the appropraite sources.

With the finalization of the format of the curriculum materials, project staff began developing guidelines for use in administering the curriculum materials in local schools.

On December 10, 1976, a group comprised of educational administrators and teachers at all three educational levels (elementary, junior high, secondary), educational curriculum specialists, local and area school agriculture teachers, agricultural education staff members at Iowa State University, agricultural education students and their parents and industry representatives along with project staff members met on the campus of Iowa State University. During this meeting, project activities were explained and their participation solicited in assisting project staff members in identifying major components that should be included in administrative guidelines for implementing the curriculum materials developed in Phase III. Each committee member was given copies of all project materials developed up to that point in the project with the request that they study them and be prepared to react about them during the month of February. Those persons who participated on this committee are listed below.

Cliff Van Berkum
Vocational Agriculture Instructor
Swea City, Iowa

Steve Jorgensen
Vocational Agriculture Instructor
Newell, Iowa

George Cummins, Instructor
Hawkeye Institute of Technology
Waterloo, Iowa

Elgin Allen
Principal
Algona, Iowa

Fred Gosh
Industry Representative
Webster City, Iowa

Mr. Fred Morford
School Board Member - farmer
Dexter, Iowa

Ron Meals, Principal
Kate Mitchell Elementary School
Ames, Iowa

Genevieve Carrol
Elementary Teacher
Webster City, Iowa

Dave Ketelson
Junior High Teacher
Tama, Iowa

Dave Morford
Agricultural Education Student
ISU
Ames, Iowa

Mr. Carl Hoefing
Farmer
Manson, Iowa

Mrs. Carl Hoefing
Farm-wife
Manson, Iowa

Merle Hoefing
Agricultural Education Student
ISU, Ames, Iowa

Gary Briers
Agricultural Education Staff
ISU
Ames, Iowa

Willie Rawls
Agricultural Education Staff
ISU
Ames, Iowa

Mrs. Fred Morford
Farm-wife
Dexter, Iowa

Robert J. Ford, Chief
Elementary-Secondary Services
Career Education Division
Department of Public Instruction
Des Moines, Iowa

Gerald R. Lamers, Chief
Post-Secondary Services
Career Education Division
Department of Public Instruction

Ronald D. Jarchow, Chief
Post-Secondary Services
Career Education Division
Department of Public Instruction
Des Moines, Iowa

Richard Carter
Agricultural Education Staff
ISU
Ames, Iowa

Emeron Dettman
Agricultural Consultant
Career Education Division
Department of Public Instruction
Des Moines, Iowa

Mildred Middleton
Curriculum Specialist
Cedar Rapids, Iowa

During February, the committee members met two days on the Iowa State University campus with staff members. In large and small group sessions, committee members reacted to the materials given them earlier pointing out areas of concern that should be considered by project staff members when developing administrative guidelines for implementing the curriculum materials. A summary of their reactions is included in Appendix C marked as "Exhibit C."

Using these suggestions as a basis from which to build, project staff members, assisted by advisory committee members, developed a tentative set of guidelines for administering the curriculum materials in local school settings. As with the curriculum materials, these guidelines will be field tested and revised as a result of these tests. They will be submitted to the U.S.O.E. in final form with the curriculum guidelines for general distribution.

Accomplishments.

The following statements summarize the accomplishments of the project for the period beginning on July 1, 1975 and concluding on March 31, 1977.

A statement of principles undergirding agriculture and agribusiness education in Iowa was written, reviewed, revised and broadened to include emerging and future trends that would have an influence on the program in the years ahead.

A forum was held on the Iowa State University campus during which the above trends were identified and discussed. Speakers during the forum included the most notable and renowned representatives in the education, sociology, economic, and agricultural disciplines.

Three functions for agriculture and agribusiness education were described and accepted as basic purposes for such education in Iowa. Two of these functions added breadth and scope to existing agricultural education efforts in Iowa.

A tentative strategy for implementing the three functions in the curricula of Iowa public schools was developed and instructional materials identified to implement this strategy. Program goals, curriculum and instructional objectives, suggested subject matter and learning activities were identified for each function coordinated with student needs at each instructional level.

A tentative set of administrative guidelines were developed that would guide the implementation of the curriculum guidelines in local schools.

Approximately 850 people at all educational levels and in all levels of educational administration, persons representing related disciplines and industry and students had direct input into project activities when and where their assistance was needed. Included among these groups were elementary, secondary, and post-secondary teachers and administrators; secondary and post-secondary school board members and students; specialists in sociology, economics, career development, agriculture, occupational education, philosophy, curriculum development; Department of Public Instruction specialists in career education; parents of students enrolled in agricultural education programs and industry representatives.

The achievements of this project have been accepted by teacher educators and supervisory personnel in agricultural education as appropriate for Iowa and efforts have been funded for additional activities that will result in field testing and further refinement of the materials developed in the project.

Evaluation.

As was stated in the project proposal, evaluation of project activities was carried out by an independent third-party -- namely, the Iowa Advisory Council on Career Education. Included in Appendix D are their evaluations of project activities as they were reported to the project staff during and at the conclusion of the project. In addition to the evaluative efforts of this group, advisory committee members and outside consultants and committee members that worked with project staff members throughout its existence provided instant and ongoing evaluative input into the project.

Conclusions.

Described below are the important conclusions and recommendations derived from project activities.

The design of the project was adequate to lead to satisfying the objectives as stated in the proposal. One difficulty, however, that was experienced was that insufficient time had not been allowed to adequately carry out project activities. Had it not been for the time extension granted the project, only partial completion of the last two objectives would have been attained. In such endeavors in the future, ample time should be allowed for the slow, rather tedious task of curriculum development.

The problem dealt with in this project was a "real" problem that confronted a real need facing agriculture and agribusiness education in Iowa. Because of the urgency of finding solutions to this problem, project staff members were able to involve others in carrying out project activities with great ease.

Based on the outcomes of this project, the function and role of agriculture and agribusiness education must be expanded in Iowa and throughout the nation. In light of current and future societal trends and student needs, the program cannot focus only on the narrow purpose of people for entry into an occupation in the agricultural industry. Emphasis must be placed on the significance of agriculture and food production in our national and international life and the avocational interests of people in agriculture.

The study of agricultural concepts should not be limited to a three or four year course of study at the secondary level. It should be incorporated into existing programs of study at all grade levels and in all educational disciplines. Such an articulated approach to the study of this subject will enhance the development of the basic and social skills of the learner as well as provide a high degree of relevance for such instruction through the study of agricultural problems.

Throughout the country, many educators in agriculture and vocational education are attempting to delineate and write philosophies for their programs. Based on the outcomes of this project, these persons should accept existing philosophies to guide their programs and devote their efforts to identifying those basic principles that undergird their programs that are based on the philosophy they accept for their programs.

Consideration should be given to the amount of "vocational" training that should be provided at the secondary level in agriculture. Experimentation should be initiated that would test the hypothesis that adequately vocational training can be provided at the secondary level in two rather than four years and that the first two years could be open to a general study of agricultural problems and the significance of agriculture and food production as well as avocational interests in agriculture.

Agriculture and agribusiness education in Iowa is supported by seven specific guiding principles accepted by practioners in the field, teacher educators, and state supervisory personnel. Instruction in agriculture and agribusiness education should exemplify these principles. A statement of these principles can be found in the supplementary materials submitted with this report.

Based on the evaluations of the basic principles described in this study, increased attention should be placed on the "general education" of the learner than has been the case in the past in agriculture and agribusiness education programs.

The social, psychological, and educational needs of the learner at each instructional level must be of first concern when developing and implementing curricula in agriculture and agribusiness education programs. Careful consideration should be made to avoid making subject matter and knowledge for knowledge sake the major goal of such education. It is the application of this knowledge to students needs and problems that must be of primary concern in all program planning and instruction.

Based on the outcomes of this project, it is recommended that in future projects of this type, extensive use be made of persons outside the profession in planning and conducting project activities. The degree of appropriateness of materials developed and outcomes achieved would not have been nearly as great had such persons not been involved with the project throughout its existence.

One dimension of the project that enhanced greatly its significance and usefulness was the use of specialists in educational philosophy and curriculum planning. These men (Drs. Tyler, Stanley, Clouse, and Swanson) brought an expertise to the project that could not have been achieved in any other way. Their contribution insured the development of project activities and materials that are rooted in sound educational theory and will contribute to their usefulness in the years ahead.

Appendix A

Phase I Materials

Exhibit A

Philosophical Constructs for the Agri-Business and Natural Resource Programs of Iowa

Introduction:

Agri-Business and Natural Resource programs are rooted in the concept that educational goals grow out of real individual and social needs, and that aims without means of attainment are sterile and futile. Ends and means and therefore integrally related and are immersed in the physical world which surrounds us all.

Among the characteristics that typify Agri-Business and Natural Resource programs are an orientation toward: (1) individual and social needs; (2) the physical world; (3) experience; (4) problem solving; (5) pragmatism; and (6) felxibility and continuity.

Individual and Social Orientation

Agri-Business and Natural Resource Programs are oriented toward individual and social needs of persons living in and interacting with the contemporary world. Such programs are primarily concerned with educating persons to assure a continuing quantity of raw and processed materials needed to supply basic human needs of food, clothing, and shelter. These programs are also concerned with serving the higher hierarchial needs of individuals and groups, such as developing competence in individually satisfying and socially responsible skills and occupations leading toward individual fulfillment and social viability.

Physical World Orientation

Agri-Business and Natural Resource programs are directed largely toward the manipulation of the resources of the natural world -- land, water, air, plants, and animals -- and toward the goals of supplying the needs and enhancing the quality of life for mankind. Theories, ideas, and concepts used as a basis for such activity are derived largely from empirical investigation of the functions of the natural world.

Experience Orientation

Agri-Business and Natural Resource programs have a major premis that experience, whether good, bad, or indifferent, is the medium in which the human being lives and dies and is therefore the primary source through which he derives knowledge. The activity of human experience provides the means of comprehending the operation of the physical world and of coping with problems therein.

Problem-Solving Orientation

In Agri-Business and Natural Resource programs the context of problem solving is viewed as the optimal mode of enhancing motivation and creating a fertile learning environment. The fund of accumulated knowledge is of utmost importance, but as a means to the end of problem solving rather than as an end in itself.

Pragmatic Orientation

Pragmatism is defined as a theory of logic that refers thinking and action to consequences for final test. Values which are both personal and social, are judged in terms of their long range workability in a problem solving context. Both instrumental values, defined as those values serving as means to ends, and intrinsic values, defined as those values that are worthwhile in and of themselves, are recognized as legitimate human concerns and are judged on similar pragmatic grounds.

Orientation Toward Flexibility and Continuity

Agri-Business and Natural Resource programs are characterized by flexibility rather than rigidity in their attempt to cope intelligently with constant change. Consistent with this concept of change is the theory that the human organism is constantly confronted with problems of adaptation to an ever changing environment. The need for education is therefore viewed as continuous, rather than finite and terminal.

Exhibit B

Summary of Comments on Proposed Philosophical Constructs for Agriculture and Agribusiness Education

Below is a summary of the comments, deletions and additions submitted by the panel of teacher educators and state supervisors from the Central States Region; teacher educators from Iowa State University, Agricultural Education Department; and state supervisors from the Iowa Department of Public Instruction.

Comments and additions concerning the INTRODUCTION:

1. First sentence, add after the word education: as an integral part of the total educational program
2. Delete the word educational in the first sentence
3. Change the title of the program to; Agriculture and Agribusiness Education
4. Who is this for? Average layman will not comprehend.
5. Do you really want to say it to all things to all people- why not develop a statement that will identify the parameters that we operate within
6. Occupational goal of the individual in this area- production, farming and processing and marketing of food and fiber.
7. This would apply to any kind of education- too general

Comments, deletions and additions concerning the construct INDIVIDUAL AND SOCIAL ORIENTATION :

1. I suppose the world economy and management could be included in this construct

2. Sixth line in this construct; after the word groups insert, in a democracy

3. Can't you shorten and simplify this

4. First line after word towards, insert; the occupational, leadership and social needs of persons that plan to or are engaged in an agriculture or related vocation.

Comments, deletions and additions concening the construct PHYSICAL WORLD ORIENTATION :

1. I would like the title and statement to include emphasis upon agriculture
2. Line one of construct change directly to directed
3. Second line, managing is a better word then manipulation
4. Comment after last sentence in construct; production- efficiently and effectively

Comments, deletions and additions concerning the construct EXPERIENCE ORIENTATION :

1. Fourth line; after the word knowledge add, and developes skills
2. Fourth line; after the word knowledge add, attitudes and skills
3. Line one; insert meet performance objective rather than major premis
4. Comment; Providing hands on experience that will provide the individual with knowledge, skills and abilities.

Comments, deletions and additions concerning the construct PROBLEM SOLVING ORIENTATION :

1. If you have this, which is basic, it should be based upon real-life-like problems (experience) to meet needs (pragmatic orientation)
2. I think that this (pragmatic orientation) can be revised to include the essentials under this heading (problem-solving). There is duplication.
3. Line three and four is good.
4. Comment; Problem solving procedure for decision making

Comments, deletions and additions concerning the construct PRAGMATIC ORIENTATION :

1. Third line; after the word their, insert the words, immediate and
2. Isn't this simply the decision making process
3. Comment; Why not say take theory and put into practice
4. Comment; Put in context for Agriculture Education

Comments, deletions and additions concerning the construct ORIENTATION TOWARD FLEXIBILITY AND CONTINUITY :

1. Second line; delete the word their and insert its
2. Comment; This would apply to almost any occupational area in vocational education
3. Following last sentence in construct; Understanding of basic concepts and principals that will provide the basis for making effective decisions in a changing technological agricultural industry

A summary of other comments made that relate to the philosophical constructs that were reviewed by the panel of judges:

1. Your listing of practices should be reviewed carefully to identify some other major ideas that perhaps should be included in the philosophy statement. Keep in mind that our program is an educational program in agriculture.
2. You've done some good, hard thinking and the statements hang together. I believe it is well for professionals to consider lofty statements, I really wonder about the usefulness of them for laymen, however, I'm enclosing three other statements made by our collegues for your consideration and whatever use you care to make of them.
3. This makes sense to me. I made only one or two minor additions on p. 2. Sounds like an exciting project.
4. This page (2) is typical intellectual jargon. Why not say what you want to say in terms most people would understand

Exhibit C

BASIC PRINCIPLES FOR AGRICULTURE AND AGRIBUSINESS EDUCATION IN IOWA

Introduction

Agriculture and Agribusiness Education is rooted in the concept that educational goals grow out of real individual and social needs, and that aims without means are sterile and futile. Ends and means are therefore integrally related and are immersed in the world which surrounds us all.

Among the characteristics that typify Agriculture and Agribusiness Education are orientations toward: (1) Democracy, (2) Individual and Social Needs; (3) Agricultural Resource Management; (4) Experience: (5) Problem Solving; (6) Pragmatism: (7) Flexibility and Continuity: and (8) Interrelationships of Agriculture.

Democratic Orientation

Agricultural education is committed to democracy not only as a political and social philosophy, but also as an educational mothodology. For example, the pragmative orientation of this educational discipline recognizes that values and propositions are ultimately tested by their consequences in the lives of human beings. While the contributions of specialized expertise are vital, evaluation of decision-making must eventually refer to the experience of those who are effected by policies and programs. Accountability to those who experience the consequences of decisions is thus a basic requirement of sound educational policy. Such accountability is one of the principles that underlie the commitment of agricultural education to broad student and community involvement in the decision making process. Further, agricultural education is based on the value of free and open inquiry in the testing of hypotheses. Recognition of the importance of such inquiry underscores need for freedom to question the assumptions of those in authority. Freedom of inquiry as a fundamental democratic principle is an essential component of the educational process. Finally problem solving as a method of learning implies that students are actively involved in discovering solutions to problems directly or indirectly relevant and preferably perceived by the student to be relevant to the needs of the student and the realities of the society. This means that students must think for themselves, make choices among different courses of action, and take responsibility for the consequences. Student initiative and choice are, therefore, an essential part of democratic educational method. In all these ways the pragmatic and problem solving approach to education requres the initiative and intelligent critical participation of all those who are part of or affected by the process of education in vocational agriculture. It is important to note, however, that democratic principles of education do not mean (as is argued by the extreme wing of the advocates of the shild centered school and the radical wing of the advocates of the open classroom) that the learner is in all cases completely capable of determining what he should study, directing this study or unilaterally forming his character. Parents, the community and the teacher have a definite responsibility to guide and in appropriate sense discipline the education of the young. The fundamental obligation of agricultural education in this respect is to so treat the students that they become progressively better able to be self directing--that is to choose and judge for themselves on the basis of the most intelligent consideration of the alternatives, of which they are capable, and to assume responsibility for their decisions.

Implementation of a democratic approach to agricultural education requires that teachers, administrators, and other workers in the field of agricultural education develop competencies not stressed in an authoritarian system. Teachers, for example, need to know how to relate content material to student interests and problems, how to arrange conditions and settings that require inquiry on the part of the student, and how to facilitate discussion and communication among students. Moreover, both teachers and administrators need to learn how to relate to and understand community and parent interests, how to deal with conflicts among groups interested in agricultural education, and how to deal with differences between each other. These skills involve a greater sensitivity, flexibility, and capacity to deal with complex problems than is involved in an authoritarian approach to education.

The democratic approach developed here is necessary if agricultural education is to fulfill its responsibilities both to the individual and society. Life in a democratic and free society requires capabilities beyond those required in an authoritarian society. Personal initiative, ability to formulate and test hypotheses, some knowledge of the methods of inquiry and understanding of the views of those with whom one disagrees are among such abilities required in a free society. A democratic approach to agricultural education tends to develop abilities of these types. In a democracy these capabilities are required in agricultural and agribusiness as they are in other fields of endeavor.

Individual and Social Orientation

Agriculture and Agribusiness Education is oriented towards, (a) the biological and social needs of persons, and (b) the needs of the society for which the individual is being educated. Such education is primarily concerned with assuring a continuing quantity of raw and processed materials needed to supply basic human needs (food, clothing, shelter, etc.), and with the development of the knowledge necessary to enable the individual to understand the role of agriculture in the life of the nation and the world. Agriculture and Agribusiness Education likewise is concerned with serving the needs of individuals and groups in developing competence in individually satisfying and socially responsible knowledge, skills, and occupations leading toward individual fulfillment and social viability. Satisfaction with one's occupation is of great importance both to the individual and to the efficiency of the productive process.

Needs, both individual and societal, should be determined by a cooperative process in which all concerned participate to the extent of their ability to do so. Among the individuals and groups that must be included in this process are students, teachers, parents, community representatives, and the relevant experts. In the determination of the needs of the student, his views should receive major, though not exclusive, consideration. In determining the needs of society, expert judgement should perhaps play a much larger role than was the case in determination of individual needs.

Agriculture Resource Management Orientation

Agriculture and Agribusiness Education is directed largely toward the management of the factors, forces, processes, and resources involved in the conduct of agricultural enterprieses. Theories, ideas, and concepts used as a basis for such activity are derived largely from experimental investigation including both the rigorous scientific processes of the pertinent sciences and the accumulated and tested experiences of those engaged in agriculture.

Experience Orientation

Agriculture and Agribusiness Education has as a major premis that experience, whether good, bad, or indifferent, is the medium in which the human being lives and dies, and is therefore the context in which learning occurs. Experience provides the medium through which the student comprehends his world. For such experience, however, to be meaningful, the student must understand the relationship between what he does and the ensuing consequences. Needless to say, experiences can be vicarious as well as direct. Indeed, the fundamental basis of all tested knowledge incorporates a large measure of vicarious experience.

Problem Solving Orientation

In Agriculture and Agribusiness Education problem solving is the optimum method of learning, although not the sole method. Effective problem solving involves a genuine problem in which alternate courses of action are possible. It consists of a determination of the appropriate means to achieve the end desired with care, however, that in the achievement of the desired end, other consequences, which are disastrous or highly undesirable, are not also entailed. Usually such problem solving involves several phases such as: defining the problem, collecting information and knowledge, formulating hypothese, testing hypotheses in both tought and action, and judging the consequences.

All problems incorporate both intellectual and physical activity. However, it must be noted that in some types of problems the physical activity is predominant, while in others, the primary is the intellectual activity.

Problem solving, as a learning technique, is fully effective only when the problem is genuine rather than manufactured, the problem is accepted by the student as a problem of his own, and the student participates with others in planning and directing the processes by which the solution is reached.

As a method of learning problem solving obviously differs in certain respects from memorizing or even understanding the accumulated bodies of knowledge per se. These bodies of knowledge are, of course, of enormous importance in the problem solving process, but they are used as resources in the solution of the problem rather than the direct study of the particular body of knowledge itself.

Pragmatic Orientation

Pragmatism is defined as a theory of knowing and valuing which refers thinking and action to all consequences to oneself and others as the final test of the true and the good. In this process both the short and long range consequences should be considered. Ends and means can be distinguished, but they cannot be separated in the sense that no ends can be achieved without the use of means, and every end, when achieved, leads to further consequences. Accordingly, to will the end and not the means is an exercise in futility, although in many situations, alternative means are possible.

In judging human ends and purposes, values as well as descriptive propositions (i.e. "If this, then that." statements) must be included. The source of values is human wishes, desires, and wants, but, as such, wishes, desires, and wants cannot be evaluated. A wish, desire, or want becomes a value when it has been examined in terms of the consequences. All such valuation takes place in a given context because in one situation an action may lead to one set of consequences, while in another situation, a different set of consequences. The consequences produced are judged good or bad in terms of our other values. Consequently, it is impossible to judge all our values at once, but any one can be isolated for evaluation. We judge our values in terms of, (a) consistency with the rest of our value system, and (b) the consequences of the action to which the value will lead.

It is necessary to remember in any valuation process that we undertake some activities because they are intrinsically enjoyable or interesting, whereas we undertake others because they are essential means to some ends which we prize. However, as stated above, no activity can be judged as good simply because it is enjoyable. It is first necessary to determine that the consequences of engaging in the enjoyable activity are good for all those involved.

Orientation Toward Flexibility and Continuity

Agriculture and Agribusiness Education must be characterized by flexibility and adaptability rather than rigidity in its attempt to enable the student to cope intelligently with constant and significant change. The human organism is constantly confronted with problems of adaptation to an ever changing environment. Today this is more true than it ever has been in the past. We are now living in a world in which change is so rapid and so significant that education can never be regarded as conclusive or final. Accordingly, the need exists for a continuous reassessment of educational activities. However, this revision should proceed with due regard for the fact that even in the most revolutionary situation, a revision is always characterized to a significant degree by continuity as well as by significant change.

Interrelationships of Agriculture Orientation

It is no longer adequate to educate those engaged in the agricultural enterprises, and more particularly, those in leadership positions, in the knowledge, skills, and techniques required for efficient agricultural production, processing, and marketing. We are living in an increasingly interdependent and inter-related world in which agriculture, along with every other significant enterprise, is closely interwoven with the entire economic and social structure of the community, the state, the nation, and the world. In such circumstances, it is increasingly necessary for the agricultural worker, and particularly the leaders of agriculture and agribusiness--both in their own interests and the interests of their community, state, nation, and world--to understand and appreciate the importance of these institutional inter-relationships of a progressively interdependent world.

Exhibit D

Sub-Principles

Individual and Social Orientation Sub-principles:

Teach students to accept and evaluate others' ideas.

Include activities that involve student decision-making.

Emphasize the contribution that agriculture makes in meeting consumer needs.

Include instruction on the use of new agricultural products.

Include activities which allow students to become socially competent and active.

Emphasize natural resources and agriculture in the use of leisure time.

Emphasize work and workmanship by each individual in contributing to the welfare of society.

Emphasize honesty and respect.

Emphasize student participation in activities and organizations

Emphasize efficiency in other agricultural occupations as well as farming.

Include the application of technical information for production of agricultural products.

Help students identify career opportunities in farm and off-farm agricultural occupations.

Develop leadership in individuals

Foster patriotism.

Emphasize setting and attaing goals.

Forster family and other interpersonal relationships.

Emphasize efficiency in production as measured by financial success.

Include activities which allow students to become emotionally successful.

Consider the students' personal interests, needs, desires, and ambitions when determining curriculum activities.

Determine individual and social needs of the students.

Emphasize financial security.

Include the development of knowledge and skills necessary for self-fulfillment of students.

Emphasize the development of personal and business relationships.

Include a study of the conservation of our natural resources.

Agricultural Resource Management Orientation Sub-principles:

Include the understanding of management in the conduct of agricultural enterprises.

Include the use of records in the establishment of goals for the management of resources.

Include the application of technical information in marketing agricultural products.

Include the application of knowledge in attaining agricultural management goals.

Emphasize the management of capital.

Emphasize the opportunity which the democratic system provides for free enterprise.

Help students select enterprises which are manageable.

Emphasize the conservation and use of human resources to sustain enterprise efficiency and human well-being.

Emphasize the influence of world politics on local decision-making in agricultural production and marketing.

Include the recognition of natural elements (weather, disease, soil, etc.) in selecting agricultural enterprises.

Make students aware of resources needed in the agricultural production process.

Emphasize political and governmental actions which affect agricultural management decisions.

Emphasize making management decisions.

Emphasize the role of bargaining in the free enterprise system.

Include student management of limited resources.

Include the application of technical information in processing agricultural products.

Include recognition of workmanship as it applies to management.

Emphasize the management of machinery and equipment.

Experience Orientation Sub-principles:

Emphasize real-life situations and experiences

Include experiences that the student interprets as being useful to him.

Include performance experiences by students.

Include supervised occupational experience.

Provide students the opportunity to earn money through occupational experience programs.

Include individual experiences.

Include group experiences.

Emphasize the accumulation of knowledge and experience for use in future decision-making.

Include experiences that involve competition.

Emphasize experience as the medium through which knowledge is acquired and skills and abilities are developed.

Teach knowledge, skills, and abilities necessary for satisfying employment in specific agricultural occupations.

Include on-the-job experience that takes place on the farm or in the agricultural business location.

Include experiences that take place in the laboratory or shop.

Include experiences that take place in the classroom.

Include responsibilities which students can perform to develop self-confidence.

Problem Solving Orientation Sub-principles:

Base instruction upon simulated problems when actual problems are not available.

Emphasize problem solving which involves predominantly mental activity.

Utilize group instruction dealing with the problems common to specific groups of students.

Use problem solving as a method of learning.

Utlize individualized instruction in solving students' problems.

Coordinate classroom instruction with students'occupational experience programs.

Emphasize problem solving which involves both physical and mental activity of students.

Emphasize formulating and testing hypotheses in the problem-solving process.

Base instruction upon problems common to the community, state, and/or nation.

Include the study of subject matter as a resource in the solution of problems.

Empasize that students evaluate the consequences to possible solutions of problems.

Involve student participation in reaching solutions to problems.

Base instruction upon the actual problems of students.

Emphasize problem solving which involves predominantly physical activity of students.

Collect information and knowledge to aid in the problem solving process.

Identify problems relating to the student and his environment.

Emphasize that students perform definite practices as the result of instruction.

Pragmatic Orientation Sub-principles:

Emphasize that skills can be learned only through performance.

Assist students in assessing and coping with their personal strengths and weaknesses.

Assist students in continual evaluation of progress toward personal goals.

Teach students to evaluate their achievements in terms of their own values.

Stress knowledge in determining and achieving goals.

Teach students to accept their present situation and identify changes needed to achieve their goals.

Emphasize the development of the student as a whole person.

Stress that students are responsible for their own successes and failures.

Assist students in realizing that goals cannot be achieved without developing strategies for their achievement.

Encourage creative thinking in tune with students' abilities and opportunities.

Teach students to distinguish between means and ends in achieving goals.

Flexibility and Continuity Orientation Sub-principles:

Include a variety of course offerings and options for the students.

Emphasize community input in the development of agricultural education programs.

Provide educational opportunities for adults preparing for or engaging in agricultural occupations.

Continually evaluate educational activities in order to bring about program improvement.

Include a common core of knowledge.

Emphasize meeting individual student needs.

Provide educational activities for junior high school students.

Emphasize the student's awareness of new developments in agriculture.

Provide educational opportunities for secondary students.

Provide educational opportunities for elementary pupils.

Include a variety of learning experiences for the student.

Make continuous use of the human and physical resources of the community.

Provide educational opportunities for handicapped students.

Include modes of education that are informal (newspaper, television, etc.).

Study the past, present, and future trends in agriculture.

Emphasize the application of theory through solutions of actual problems.

Interrelationships of Agriculture Orientation Sub-principles:

Develop an awareness of society's responsibilities to agriculture.

Stress that agriculture is more than farming.

Include a study of the role of agriculture in our economic structure.

Develop an appreciation and understanding of the interrelationships of agriculture and world problems.

Stress the relationship of agricultural occupations to other occupations.

Develop an awareness of agriculture's responsibility to society.

Develop the understanding of the agriculture of the world from the consumer's viewpoint.

Prepare students for leadership roles in agriculture and in society.

Exhibit E

Acceptance cf Basic Philosophic Principles for Agriculture and Agribusiness Education

With the development of the seven original basic principles for agriculture and agribusiness education arose concern over whether these principles were accepted by those people involved directly or indirectly with the program at various administrative and institutional levels. To ascertain the acceptance by these people, sub-principles (illustrations) were generated for each of the seven major principles. These sub-principles were listed in questionnaire form and mailed to randomly selected individuals from eight seperate groups, namely: state supervisors, teacher educators, local and area school agriculture teachers, other public or area school teachers, principal and area school department heads, local and area school students, local and area school board members, and local and area school superintendents. Each person was asked to indicate how important each sub-principle was in the local or area school agriculture and agribusiness programs. These ratings were made on a 1 (no importance) to 99 (very important) scale with a scale value of 50 being average importance. These scores were transformed to normal deviates with the new scale values being 267 representing importance, 500 representing average importance, and 733 representing very much importance. Data in the following tables summarizes the responses of each of the above groups to each sub-principle and served to reflect the importance of each major principles.

Based on the data presented in each table, one can conclude that each major principle is accepted by all groups as being an integral part of the agriculture and agribusiness program in Iowa. All group means were above 500.

Table 1. Importance group mean scores for principle entitled "Individual and Social Orientation"

Group	Mean	Standard Deviation
State Supervisors	617.5	46.7
Teacher Educators	612.9	47.1
Superintendents	585.2	46.3
Principals	581.5	54.1
Agriculture Teachers	581.1	43.1
Other Teachers	580.53	52.4
Board Members	579.3	47.6
Students	571.5	45.2
Overall Mean	589.6	50.5

F-value = 10.19. F-value required for significance at the .01 level with 7 and 632 degrees of freedom was 2.641

Significant differences were observed between the following groups;

State Supervisors and Other teachers, principals, board members, superintendents, students, and agriculture teachers.

Teacher Educators and students and agriculture teachers.

Table 2. Importance group mean scores for principle entitled "Agricultural Resource Management Orientation"

Group	Mean	Standard Deviation
State Supervisors	601.5	51.1
Teacher Educators	599.5	51.4
Board Members	588.3	48.1
Other Teachers	580.5	54.3
Superintendents	577.2	46.7
Students	575.9	40.6
Principals	572.5	49.9
Agriculture Teachers	572.2	44.6
Overall Mean	583.6	49.8

F-value was 4.88. F-value required for significance at the .01 level with 7 and 632 degrees of freedom was 2.641.

Significant differences were observed between state supervisors and agriculture teachers.

Table 3. Importance group mean scores for principle entitled "Experience Orientation"

Group	Mean	Standard Deviation
Teacher Educators	631.1	44.4
State Supervisors	624.3	44.9
Agriculture Teachers	595.6	43.1
Students	586.8	43.8
Other Teachers	584.9	58.9
Superintendents	580.6	46.4
Principals	579.7	46.1
Board Members	573.1	50.1
Overall Mean	595.6	51.4

F-value was 16.99. F-value required for significance at the .01 level with 7 and 632 degrees of freedom was 2.641.

Significant differences were observed between the following groups:

State Supervisors and other teachers, principals, board members, superintendents, and students.
Teacher Educators and other teachers, principals, board members, superintendents, and students.

Table 4. Importance group mean scores for principle entitled "Problem Solving Orientation"

Group	Mean	Standard Deviation
Teacher Educators	615.2	43.1
State Supervisors	599.1	43.6
Agriculture Teachers	576.5	40.6
Other Teachers	576.0	45.5
Principals	569.4	42.3
Superintendents	569.4	40.4
Students	563.3	41.3
Board Members	563.2	47.9
Overall Mean	579.9	46.4

F-value was 14.98. F-value required for significance at the .01 level with 7 and 632 degrees of freedom was 2.641.

Significant differences were observed between the following groups:

Teacher Educators and other teachers, principals, board members, superintendents, students, and agriculture teachers.
State supervisors and principals, board members, superintendents, and students.

Table 5. Importance group mean scores for principle entitled "Pragmatic Orientation"

Group	Mean	Standard Deviation
Teacher Educators	613.8	50.6
State Supervisors	611.5	52.3
Board Members	585.4	48.5
Other Teachers	585.3	52.3
Principals	583.9	52.3
Agriculture Teachers	583.8	43.9
Superintendents	583.4	47.8
Students	568.9	43.7
Overall Mean	590.2	51.1

F-value was 7.79. F-value required for significance at the .01 level with 7 and 632 degrees of freedom was 2.641.

Significant differences were observed between the student and state supervisor and teacher educator groups.

Table 6. Importance group mean scores for principle entitled "Flexibility and Continuity"

Group	Mean	Standard Deviation
State Supervisors	611.1	45.9
Teacher Educators	610.8	47.3
Other Teachers	577.5	49.9
Principals	576.3	46.8
Superintendents	575.4	46.3
Agriculture Teachers	571.6	42.1
Students	570.1	39.8
Board Members	564.4	50.5
Overall Mean	583.1	49.3

F-value was 12.85. F-value required for significance at the .01 level with 7 and 632 degrees of freedom was 2.641.

Significant differences were observed between the following groups:

State Supervisors and other teachers, principals, board members, superintendents, students, and agriculture teachers.

Teacher Educators and other teachers, principals, board members, superintendents, students, and agriculture teachers.

Table 7. Importance group mean scores for principle entitled "Interrelationships of Agriculture"

Group	Mean	Standard Deviation
State Supervisors	604.8	52.5
Teacher Educators	591.9	65.1
Board Members	583.3	60.4
Other Teachers	581.8	60.9
Superintendents	577.1	53.2
Students	574.9	52.8
Principals	574.1	59.9
Agriculture Teachers	570.5	47.5
Overall Mean	582.5	57.6

F-value was 3.408. F-value required for significance at the .01 level with 7 and 632 degrees of freedom was 2.641.

Significant differences were observed between the state supervisor and agriculture teacher groups.

Table 8. Importance mean scores by principle for all respondents (N=640)

Principle	Mean
Experience Orientation	595.6
Pragmatic Orientation	590.2
Individual and Social Orientation	589.6
Agricultural Resource Management Orientation	583.6
Flexibility and Continuity Orientation	583.1
Interrelationships of Agriculture Orientation	582.6
Problem Solving	579.9

Table 9. Importance mean scores and mean ranking by principle and respondent group

Principle		Agri. Teach.	Teach. Educ.	State Sup.	Supts.	Princ.	Students	Board Memb.	Other Teach.
Individual and Social Needs	M	581.1	612.9	617.5	585.2	581.2	571.5	579.3	580.5
	R	3	4	2	1	2	4	4	4
Agriculture Resource Management	M	572.2	599.5	601.5	577.2	572.5	575.9	588.3	580.5
	R	5	6	6	4	6	2	1	5
Experience	M	595.6	631.0	624.3	580.6	579.7	586.8	573.1	584.9
	R	1	1	1	3	3	1	5	2
Problem Solving	M	576.6	615.2	599.1	569.4	569.4	563.2	563.2	576.0
	R	4	2	7	7	7	7	7	7
Pragmatic Orientation	M	583.8	613.8	611.5	583.4	583.9	568.9	585.4	585.2
	R	2	3	3	2	1	6	2	1
Flexibility and Continuity	M	571.6	610.8	611.1	575.4	576.3	570.1	564.4	577.5
	R	6	5	4	6	4	5	6	6
Interrelationships of Agriculture	M	570.2	591.9	604.8	577.2	574.2	574.2	583.3	581.8
	R	7	7	5	5	5	3	3	3

Exhibit F

Iowa State University
Ames, Iowa

SURVEY ON EDUCATION IN AGRICULTURE

DIRECTIONS:

Respond to each of the following items in terms of its importance in Agriculture and Agribusiness Education. If you think that the item is of utmost importance, write '99' in the space in front of the item. If you think that the item is of no importance, write '1' in the space. Use **any number** between 1 and 99 to indicate the approximate importance of each item. Please respond to all items.

When responding to the items below, please use the following scale

1	10	20	30	40	50	60	70	80	90	99
No Importance					**Average Importance**					**Utmost Importance**

Agriculture and Agribusiness Education Should:

_____ 1. Base instruction upon simulated problems when actual problems are not available.

_____ 2. Emphasize problem solving which involves predominantly mental activity.

_____ 3. Emphasize the development of personal and business relationships.

_____ 4. Utilize group instruction dealing with the problems common to specific groups of students.

_____ 5. Include a variety of course offerings and options for the students.

_____ 6. Emphasize community input in the development of agricultural education programs.

_____ 7. Use problem solving as a method of learning.

_____ 8. Emphasize that skills can be learned only through performance.

_____ 9. Develop an awareness of society's responsibilities to agriculture.

_____ 10. Utilize individualized instruction in solving students' problems.

_____ 11. Provide educational opportunities for adults preparing for or engaging in agricultural occupations.

_____ 12. Include the understanding of management in the conduct of agricultural enterprises.

_____ 13. Include the use of records in the establishment of goals for the management of resources.

_____ 14. Assist students in assessing and coping with their personal strengths and weaknesses.

_____ 15. Include the application of technical information in marketing agricultural products.

_____ 16. Emphasize real-life situations and experiences.

_____ 17. Include experiences that the student interprets as being useful to him.

_____ 18. Assist students in continual evaluation of progress toward personal goals.

_____ 19. Teach students to accept and evaluate others' ideas.

_____ 20. Include activities that involve student decision-making.

_____ 21. Include activities which allow students to become socially competent and active.

_____ 22. Emphasize the contribution that agriculture makes in meeting consumer needs.

_____ 23. Include instruction on the use of new agricultural products.

_____ 24. Include performance experiences by students.

Department of Agricultural Education • 223 Curtiss

_____ 25. Continually evaluate educational activities in order to bring about program improvement.

_____ 26. Stress that agriculture is more than farming.

_____ 27. Emphasize natural resources and agriculture in the use of leisure time.

_____ 28. Include supervised occupational experience.

_____ 29. Include a study of the conservation of our natural resources.

_____ 30. Teach students to evaluate their achievements in terms of their own values.

_____ 31. Include the application of knowledge in attaining agricultural management goals.

_____ 32. Provide students the opportunity to earn money through occupational experience programs.

_____ 33. Stress knowledge in determining and achieving goals.

_____ 34. Teach students to accept their present situation and identify changes needed to achieve their goals.

_____ 35. Coordinate classroom instruction with students' occupational experience programs.

_____ 36. Include a common core of knowledge.

_____ 37. Emphasize the management of capital.

_____ 38. Emphasize work and workmanship by each individual in contributing to the welfare of society.

_____ 39. Emphasize the application of theory through solutions of actual problems.

_____ 40. Emphasize honesty and respect.

_____ 41. Emphasize problem solving which involves both physical and mental activity of students.

_____ 42. Emphasize that students perform definite practices as the result of instruction.

_____ 43. Include individual experiences.

_____ 44. Include group experiences.

_____ 45. Emphasize student participation in activities and organizations.

_____ 46. Emphasize efficiency in other agricultural occupations as well as farming.

_____ 47. Emphasize the development of the student as a whole person.

_____ 48. Include a study of the role of agriculture in our economic structure.

_____ 49. Emphasize the opportunity which the democratic system provides for free enterprise.

_____ 50. Include the application of technical information for production of agricultural products.

_____ 51. Emphasize formulating and testing hypotheses in the problem-solving process.

_____ 52. Help students identify career opportunities in farm and off-farm agricultural occupations.

_____ 53. Develop an appreciation and understanding of the interrelationships of agriculture and world problems.

_____ 54. Develop leadership in individuals.

_____ 55. Base instruction upon problems common to the community, state, and/or nation.

_____ 56. Emphasize the accumulation of knowledge and experience for use in future decision-making.

_____ 57. Emphasize meeting individual student needs.

_____ 58. Include experiences that involve competition.

_____ 59. Help students select enterprises which are manageable.

_____ 60. Include the study of subject matter as a resource in the solution of problems.

_____ 61. Emphasize experience as the medium through which knowledge is acquired and skills and abilities are developed.

_____ 62. Emphasize that students evaluate the consequences to possible solutions of problems.

_____ 63. Teach knowledge, skills, and abilities necessary for satisfying employment in specific agricultural occupations.

_____ 64. Emphasize the conservation and use of human resources to sustain enterprise efficiency and human well-being.

_____ 65. Foster patriotism.

_____ 66. Emphasize the influence of world politics on local decision-making in agricultural production and marketing.

_____ 67. Emphasize setting and attaining goals.

_____ 68. Foster family and other interpersonal relationships.

_____ 69. Involve student participation in reaching solutions to problems.

_____ 70. Stress that students are responsible for their own successes and failures.

_____ 71. Base instruction upon the actual problems of students.

_____ 72. Assist students in realizing that goals cannot be achieved without developing strategies for their achievement.

_____ 73. Include the recognition of natural elements (weather, disease, soil, etc.) in selecting agricultural enterprises.

_____ 74. Make students aware of resources needed in the agricultural production process.

_____ 75. Emphasize political and governmental actions which affect agricultural management decisions.

_____ 76. Provide educational activities for junior high school students.

_____ 77. Stress the relationship of agricultural occupations to other occupations.

_____ 78. Include on-the-job experience that takes place on the farm or in the agricultural business location.

79. Emphasize the student's awareness of new developments in agriculture.

80. Emphasize problem solving which involves predominantly physical activity of students.

81. Emphasize efficiency in production as measured by financial success.

82. Include activities which allow students to become emotionally successful.

_____ 83. Provide educational opportunities for secondary students.

_____ 84. Consider the students' personal interests, needs, desires, and ambitions when determining curriculum activities.

_____ 85. Emphasize making management decisions.

_____ 86. Determine individual and social needs of the students.

_____ 87. Provide educational opportunities for elementary pupils.

_____ 88. Emphasize the role of bargaining in the free enterprise system.

_____ 89. Include experiences that take place in the laboratory or shop.

_____ 90. Include student management of limited resources.

_____ 91. Include a variety of learning experiences for the student.

_____ 92. Include experiences that take place in the classroom.

_____ 93. Make continuous use of the human and physical resources of the community.

_____ 94. Develop an awareness of agriculture's responsibility to society.

_____ 95. Encourage creative thinking in tune with students' abilities and opportunities.

_____ 96. Teach students to distinguish between means and ends in achieving goals.

_____ 97. Collect information and knowledge to aid in the problem solving process.

_____ 98. Include the application of technical information in processing agricultural products.

_____ 99. Provide educational opportunities for handicapped students.

_____ 100. Include recognition of workmanship as it applies to management.

_____ 101. Include modes of education that are informal (newspaper, television, etc.)

_____ 102. Emphasize the management of machinery and equipment.

_____ 103. Emphasize financial security.

_____ 104. Study the past, present, and future trends in agriculture.

_____ 105. Develop the understanding of the agriculture of the world from the consumer's viewpoint.

_____ 106. Include the development of knowledge and skills necessary for self-fulfillment of students.

_____ 107. Include responsibilities which students can perform to develop self-confidence.

_____ 108. Identify problems relating to the student and his environment.

_____ 109. Prepare students for leadership roles in agriculture and in society.

Please complete the following questions:

1. Age _____
2. Circle the number which indicates the highest grade you completed in school:

1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20
Elementary	High School	College	Graduate

3. How long have you lived in your present community?
   _____ years
4. Circle the type of community where you lived while attending high school:
   Urban - Small Town Non-Farm Rural Farm
5. Circle the number of years of high school vocational agriculture completed:
   0 1 2 3 4 Years

DIRECTIONS:

Rate yourself on each of the following items. If you rate yourself excellent, write '99' in the space in front of the item. If you rate yourself poor, write '1' in the space. Use **any** number between 1 and 99 to rate yourself.

How would you rate:

_____ 6. Your familiarity with Agriculture and Agribusiness education programs.

_____ 7. Your general knowledge of agriculturally related businesses.

_____ 8. Your general knowledge of the farm.

9 Your satisfaction with present Agriculture and Agribusiness Education programs.

10 Your satisfaction with the role and function of the public school system.

SIGNATURE ______________________________

Note: Your name will be used only as a check to make sure that we have surveyed all of the people whom we have asked to complete this questionnaire. This questionnaire will be held in the strictest confidence.

Thank you for your cooperation. Please fold, tape or staple closed and return by mail.

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PROJECT 2000
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Iowa State University
Ames, Iowa 50011

Appendix B

Phase II Materials

Exhibit A

PROJECT 2000 FORUM

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DEPARTMENT OF
AGRICULTURAL EDUCATION

February 24 and 25, 1976

PURPOSE OF THE FORUM

The PROJECT 2000 FORUM is intended to be a meeting of professionals to identify future trends in sociology, economics, and education and to discuss these trends in light of future program purposes and direction of agriculture and agribusiness education.

There will be three important components of the FORUM. First, twelve noted specialists in the fields of education, agriculture, developmental psychology, business, sociology, morality, and economics will make presentations inspired by what they see as prominent, future changes in their respective disciplines. Secondly, a listening panel of selected agricultural educators from across Iowa and the United States will probe the specialists on those matters that are identified as important in agriculture and agribusiness education. Thirdly, there will be round-table discussions and interactions by all specialists and listening panel members in order to place those identified trends in perspective to each other.

This review and analysis of current program purposes of agriculture and agribusiness education in terms of projected social, agricultural, cultural, economic, educational, and occupational changes will result in a new philosophical base, definition, and statement of purposes for the foundation of curriculum development in agriculture and agribusiness education.

This FORUM is but one phase of a U. S. Office of Education curriculum development project administered through the Department of Agricultural Education, Iowa State University.

SPEAKERS

Mr. Merrill Anderson
Central National Bank—Des Moines, Iowa

Dr. Keith Barrons
Dow Chemical Corporation—Midland, Michigan

Dr. Orville Bentley, Dean
College of Agriculture—University of Illinois

Dr. Glen Burton
USDA—ARAS—Georgia Coastal Plain Experiment Station

Dr. Douglas Ensminger
Department of Sociology—University of Missouri

Dr. Rupert Evans
Bureau of Educational Research—University of Illinois

Dr. H. B. Gelatt
American Institute of Research—Palo Alto, California

Dr. Robert Havighurst
Department of Education—University of Chicago

Dr. Paul Hommer, Head
Yale Divinity School—New Haven, Connecticut

Dr. Michael Nevitt
Argonne National Laboratories—Argonne, Illinois

Dr. Dennis Starleaf
Iowa State University

Dr. Ralph Tyler
Science Research Associates—Chicago, Illinois

TOPICAL AREAS

"Agricultural Trends, Issues and New Directions in Iowa"

"Advances and New Directions in Technical Agriculture"

"Contributions of Agricultural Business and Industries to State, National, and World Economies"

"Trends, Problems, and Issues Ahead in World Food Production"

"Social Trends, Issues, and New Directions in America"

"Labor Trends and Needs of Society During the Next Decades"

"Changing Patterns of Vocational and Career Decision Making"

"Changing Developmental Needs of Secondary and Post-Secondary Youth"

"New Moralities and Old: A Reconsideration"

"Significant Scientific Trends, Issues, and Developments in America"

"Economic Trends, Issues, and New Directions in America"

"Trends, Issues, and New Directions in American Education"

General Program

	Tuesday, February 24, 1976	Wednesday, February 25, 1976
MORNING	Trends in Agricultural Technology, Production, and Business	Trends in Education, Sociology, Labor, and Economics
AFTERNOON	Trends in Career Decision-Making, Morality, Science, and Developmental Needs of Youth	Interaction
EVENING	Dinner and Group Interaction	Summarization of Forum Listening Panel Only

PRE-REGISTRATION FORM

PROJECT 2000 FORUM FOR AGRICULTURAL EDUCATION

February 24 and 25, 1976

Name ______________________________

Address ______________________________

Institution ____________________ Telephone ______

I plan to listen to the following speakers:

☐ Mr. Merrill Anderson
☐ Dr. Keith Barrons
☐ Dr. Orville Bentley
☐ Dr. Glen Burton
☐ Dr. Douglas Ensminger
☐ Dr. Rupert Evans
☐ Dr. Robert Havighurst
☐ Dr. H. B. Gelatt
☐ Dr. Paul Hommer
☐ Dr. Michael Nevitt
☐ Dr. Dennis Starleaf
☐ Dr. Ralph Tyler

I plan to attend the following meal functions:

February 24, 1976
☐ Lunch
☐ Dinner (Approximate Cost $8.00)
February 25, 1976
☐ Lunch

LISTENING PANELISTS

Dr. Ralph Bender, Head
Department of Agricultural Education
Ohio State University

Dr. Harold Crawford, Head
Department of Agricultural Education
Iowa State University

Mr. George Cummins, Instructor
Hawkeye Institute of Technology
Waterloo, Iowa

Mr. Harold Gamm
Des Moines Area Community College
Ankeny, Iowa

Mr. Steve Jorgensen
Vocational Agriculture Instructor
Rolfe, Iowa

Mr. C. M. Lawrence
Florida Department of Education
Tallahassee, Florida

Dr. Darrell Parks
Ohio Department of Education
Columbus, Ohio

Dr. Milo Peterson
Department of Agricultural Education
University of Minnesota

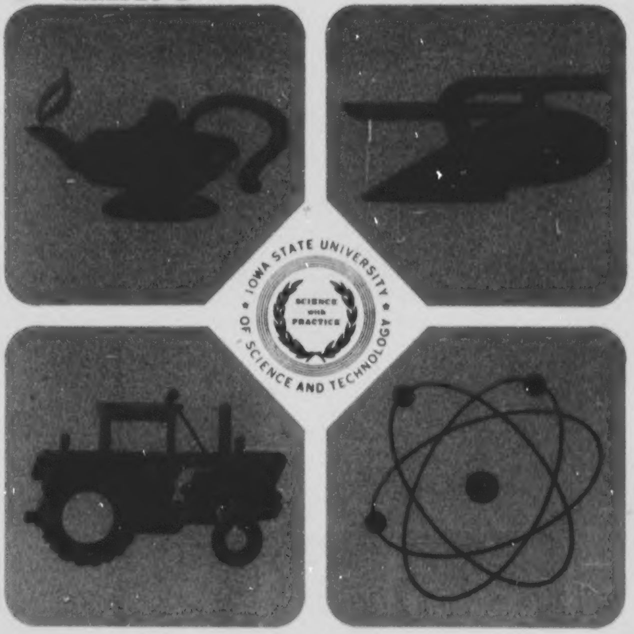
Dr. Richard Smith
State Department of Public Instruction
Des Moines, Iowa

Dr. Gordon Swanson
Department of Agricultural Education
University of Minnesota

Mr. Clifford VanBerkum
Vocational Agriculture Instructor
Swea City, Iowa

Listening Panel Chairman
  Clarence E. Bundy
  Department of Agricultural Education
  Iowa State University

Exhibit B


IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCIENCE with PRACTICE

PROJECT 2000 FORUM

FOR AGRICULTURAL EDUCATION IN IOWA

February 24 and 25, 1976

PROJECT 2000 FORUM
AGRICULTURAL EDUCATION
223 Curtiss Hall
Iowa State University
Ames, Iowa 50011

PROJECT STAFF

Alan A. Kahler
James Leising
Tom Archer
John Magill

Conference Secretary
Worth Haynes

ADVISORY COMMITTEE

James Athen
Clarence Bundy
Harold Crawford
Emeron Dettmann
George Kizer
Eleanore Kohlmann
Anton Netusil
Reginald Soldwish
Joe White

PROJECT CONSULTANTS

William Stanley
Ralph Tyler
Gordon Swanson

PROGRAM
Project 2000 Forum
for Agricultural Education in Iowa

Monday, February 23
Memorial Union

Afternoon

Arrival and check-in at the Memorial Union, Iowa State University

6:45 p.m.	Dinner	Oak Room
	Welcome Introductions General Comments	Dr. Alan A. Kahler *Project Director* Mr. Worth Haynes *Forum Secretary*
8:00 p.m.	Forum Orientation	
Room 201	Forum Speakers	Dr. Alan A. Kahler *Project Director*
Room 205	Listening Panel	Professor C. E. Bundy *Chairman, Listening Panel*

Tuesday, February 24
Scheman Continuing Education Building

Session 1

Mr. James Leising, *Chairman*
Iowa State University

8:00-8:40 a.m.	Agricultural Trends, Issues and New Directions in Iowa	Mr. Merrill Anderson *Central National Bank* *Des Moines, Iowa*
8:40-9:20	Advances and New Directions in Technical Agriculture	Dr. Keith Barrons *Dow Chemical Corp* *Midland, Michigan*
9:20-9:50	Interaction— Listening Panel with above speakers	
9:50-10:10	Coffee Break	

Session 2

Mr. Joe White, *Chairman*
Ellsworth Community College

10:10-10:50	Trends, Problems, and Issues Ahead in World Food Production	Dr. Glenn Burton *USDA-ARAS* *Georgia Coastal Plain Experimental Station*
10:50-11:30	Labor Trends and Needs of Society During the Next Decades	Dr. Rupert Evans *Bureau of Educational Research* *University of Illinois*
11:30-12:00	Interaction— Listening Panel with above speakers	
12:00-1:00 p.m.	Lunch	Rooms 204-208

Session 3

Mr. Tom Archer, *Chairman*
Iowa State University

1:00-1:40 p.m.	Changing Developmental Needs of Secondary and Post-Secondary Youth	Dr. Robert Havighurst *College of Education* *University of Chicago*
1:40-2:20	Changing Patterns of Vocational and Career Decision-Making	Dr. H. B. Gelatt *American Institute of Research* *Palo Alto, California*
2:20-2:50	Interaction— Listening Panel with above speakers	
2:50-3:10	Coffee Break	

Session 4

Mr. James Athen, *Chairman*
State Department of Public Instruction

3:10-3:50	New Moralities and Old: A Reconsideration	Dr. Paul Hommer *Yale Divinity School* *New Haven, Connecticut*
3:50-4:30	Significant Scientific Trends, Issues and Developments in America	Dr. Michael Nevitt *Argonne National Laboratory* *Argonne, Illinois*
4:30-5:00	Interaction— Listening Panel with above speakers	

Ames Country Club Session 5

Dr. Harold Crawford, *Chairman*
Iowa State University

6:30 p.m.	Dinner
7:30	Total Interaction— Open to the Public

Group	Group Interaction Leaders	Group Interaction Secretaries
Group 1	Dr. David Williams, ISU	Lee Cole, ISU
Group 2	Dr. Harold Crawford, ISU	Gary Briers, ISU
Group 3	Dr. Anton Netusil, ISU	Douglas Pals, ISU
Group 4	Dr. Bennie Byler, ISU	Jim Hilton, ISU

Wednesday, February 25
Scheman Continuing Education Building

Session 6

Mr. John Magill, *Chairman*
Iowa State University

8:00-8:40 a.m.	Economic Trends, Issues, and New Directions in America	Dr. Dennis Starleaf *Department of Economics* *Iowa State University*
8:40-9:20	Significant Social Trends, Issues, and New Directions in America	Dr. Douglas Ensminger *Department of Sociology* *University of Missouri*
9:20-9:50	Interaction— Listening Panel with above speakers	
9:50-10:10	Coffee Break	

Session 7

Dr. Eleanore Kohlmann, *Chairman*
Iowa State University

10:10-10:50	Contributions of Agricultural Business and Industry to State, National, and World Economies	Dr. Orville Bentley, Dean *College of Agriculture* *University of Illinois*
10:50-11:30	Trends, Issues, and New Directions in American Education	Dr. Ralph Tyler *Science Research Associates* *Chicago, Illinois*
11:30-12:00	Interaction— Listening Panel with above speakers	
12:00-1:10 p.m.	Lunch	Rooms 204-208

Session 8

Dr. Harold Crawford, *Chairman*
Iowa State University

1:15-3:15 p.m.	Speakers and Listening Panel Interaction	
3:15-3:30	Summary and Concluding Remarks	Dr. Alan A. Kahler *Project Director*
3:30-4:00	Work Session— Listening Panel Room 254	

Session 9

Prof. C. E. Bundy, *Chairman*
Iowa State University

Memorial Union

6:30 p.m.	Dinner and Discussion for Listening Panel Only	Regency Room
7:30	Work Session for Listening Panel	Room 205

Thursday, February 26
Scheman Continuing Education Building

Room 254 Session 10

Prof. C. E. Bundy, *Chairman*
Iowa State University

8:00-12:00	Listening Panel Work Session

Room 208 Session II

Dr. Alan A. Kahler, *Chairman*
Iowa State University

12:00-1:00 p.m.	Lunch	
1:00	Listening Panel Report to Project Staff	Prof. C. E. Bundy, *Chairman, Listening Panel*
2:00	Adjourn	

Listening Panelists

Clarence Bundy—Chairman, Listening Panel
Department of Agricultural Education
Iowa State University

C. M. Lawrence
Florida Department of Education
Tallahassee, Florida

Darrell Parks
Ohio Department of Education
Columbus, Ohio

Ralph Bender, *Head*
Department of Agricultural Education
Ohio State University

Milo Peterson
Department of Agricultural Education
University of Minnesota

Harold Crawford, Head
Department of Agricultural Education
Iowa State University

Steven Jorgensen
Vocational Agriculture Instructor
Rolfe, Iowa

Clifford Van Berkum
Vocational Agriculture Instructor
Swea City, Iowa

George Cummins, *Instructor*
Hawkeye Institute of Technology
Waterloo, Iowa

Harold Gamm
Des Moines Area Community College
Ankeny, Iowa

Richard Smith
State Department of Public Instruction
Des Moines, Iowa

Gordon Swanson
Agricultural Education Department
University of Minnesota

AGRICULTURAL EDUCATION STAFF

Harold Crawford—Head
Bennie Byler
Thomas Hoerner
Alan Kahler
David Williams
Clarence Bundy—Professor Emeritus
Tom Archer
Gary Briers
Richard Carter
Winston Haye
Worth Haynes
Duane Kaas
James Leising
John Magill
Doug Pals

Appendix C

Phase III and IV Materials

"Exhibit A"

Classification of Learners Needs by Age Groups

According to Tyler's Principles of Curriculum and Instruction, the needs of the learners are of upmost importance in the development of curriculum objectives. Since an educational objective is comprised of both a behavioral change and subject matter content, it is necessary to assess learners' needs in order to determine behavioral changes that should be emphasized in an objective.

There have been many attemps to identify various human needs at all age levels. Studies have generally resulted in broadly stated developmental needs. It has been the intent of the authors to investigate literature to obtain an insight into the sequential needs of learners durring middle childhood, late childhood, early adolescence, and late adolescence. In some instances, the needs of learners were identified by reviewing characteristics of the learners at various age levels.

Although the listing developed is not intended to be all-inclusive, it is intended to help identify certain behavioral changes that must be dealt with in a curriculum. Through a comprehensive program of matching behavioral changes with subject matter content that will better facilitate those changes, the needs of students are more likely to be met.

There are many physical needs that are important to all learners, including the need for food, water, shelter, clothing, balance between rest and activity, and the development of manipulative muscular skills. These needs vary only slightly in intensity through all age levels. Psychological needs that are important to all learners are the need for love, success, security, approval, companionship, belonging, and gaining independence. These basic needs cannot be overlooked when formulating curriculum objectives.

The following is a classification of sociological, psychological, and educational needs common to learners of various age groups. It may be noted that needs are basically sequential in nature, becoming increasingly more complex as the age of the learner progresses.

1.00 Middle Childhood

Middle childhood has been identified for this study as including children five through nine years of age. Sociological, psychological, and educational needs of learners in the age group include the need:

Sociological Needs

- S-1.1 To get along with age-mates
- S-1.2 To identify with age-mates
- S-1.3 For civic awareness
- S-1.4 Of a sense of "fair play" in the interaction with others
  - S-1.4.1 For cooperative attitudes
- S-1.5 For awareness of occupational roles
- S-1.6 To communicate with others
  - S-1.6.1 To share ideas with others
- S-1.7 For social awareness
  - S-1.7.1 For an ever-expanding environment

Psychological Needs

- P-1.1 For wholesome attitudes about oneself
  - P-1.1.1 For a feeling of self-confidence
- P-1.2 To accept one's own sex role
- P-1.3 For an ethical code of behavior
- P-1.4 For physical independence
- P-1.5 For models
  - P-1.5.1 For attitudes based on models
  - P-1.5.2 For characteristics based on models
- P-1.6 To relate past experiences to present situations

Educational Needs

- E-1.1 For fundamental life skills: (a) reading, (b) writing, (c) calculating, and (d) speaking.
  - E-1.1.1 For opportunity to practice fundamental life skills: (a) reading, (b) writing, (c) calculating, and (d) speaking.
- E-1.2 To make intelligent choices
- E-1.3 For career awareness
  - E-1.3.1 For self-awareness
  - E-1.3.2 For awareness of the world of work
- E-1.4 For abilities necessary for everyday living
  - E-1.4.1 For social abilities
  - E-1.4.2 For civic concepts

2.00 Late Childhood

Late childhood has been identified for this study as including children nine through twelve years of age. Sociological, psychological, and educational needs of learners in this age group include the need:

Sociological Needs

- S-2.1 To accept differences among age-mates
- S-2.2 To recognize inter-dependencies with age-mates
- S-2.3 For democratic beliefs
- S-2.4 To respect others
- S-2.5 For awareness of the relationship of occupational roles to oneself
- S-2.6 To interact in a social atmosphere
  - S-2.6.1 For human relation skills
- S-2.7 For the concept of social geographic relationships (community, state, nation, world).

Psychological Needs

- P-2.1 For a self image in relation to others
- P-2.2 For awareness of the likenesses and differences in masculine and feminine sex roles
- P-2.3 For refinement of an ethical code
  - P-2.3.1 For a set of values
- P-2.4 For greater independence involving personal interactions
- P-2.5 For evaluation of models
  - P-2.5.1 For evaluation of attitudes gained from models
  - P-2.5.2 For evaluation of characteristics gained from models
  - P-2.5.3 For attitudes about social groups and institutions
- P-2.6 For appreciation of consequences resulting from actions taken

Educational Needs

- E-2.1 For improved fundamental life skills: (a) reading, (b) writing, (c) calculating, and (d) speaking
- E-2.2 For reasoning abilities
  - E-2.2.1 For ability to solve problems
  - E-2.2.2 For ability to make decisions
  - E-2.2.3 For judgmental abilities
- E-2.3 For career accommodation
  - E-2.3.1 For career awareness
  - E-2.3.2 For awareness of the world-of-work
  - E-2.3.3 For awareness of relationships between the world-of-work and self-perception
- E-2.4 For satisfaction of curiosity
  - E-2.4.1 For sex education
  - E-2.4.2 For information concerning sex roles in a changing society
- E-2.5 For self-directed activities

3.00 Early Adolecence

Early adolescence has been identified for this study as including persons twelve through eighteen years of age. Sociological, psychological, and educational needs of learners in this age group include the need:

Sociological Needs

- S-3.1 For mature relationship with age-mates
- S-3.2 For recognition of one's behavior in relation to a shifting peer code.
- S-3.3 For a sense of citizenship
  - S-3.3.1 For acceptable political attitudes.
- S-3.4 For cooperation with others in reaching a common goal.
  - S-3.4.1 For being receptive of others' points of view.
  - S-3.4.2 For understanding of family relationships.
- S-3.5 For assurance of economic independence.
- S-3.6 For human relations and communicative skills.
- S-3.7 For an acceptable social behavior.

Psychological Needs

- P-3.1 For self-concept during transition to adulthood.
  - P-3.1.1 For acceptance of one's own physique.
  - P-3.1.2 For acceptance of oneself as a worthwhile person.
  - P-3.1.3 For acceptance of one's own ability.
  - P-3.1.4 For self confidence.
- P-3.2 For interaction with age-mates.
  - P-3.2.1 For acceptance of developmental variations between age-mates of the same sex.
  - P-3.2.2 For social interaction with the opposite sex.
- P-3.3 For an ethical system to guide behavior.
  - P-3.3.1 For a set of values to guide behavior.
- P-3.4 For emotional independence form adults.
  - P-3.4.1 For independence form parents while maintaining affection.
  - P-3.4.2 For a positive attitude toward family life.
  - P-3.4.3 For independence form adults while maintaining respect.
  - P-3.4.4 To cope with emotions.
  - P-3.4.5 Tor parental support, understanding, and guidance.
- P-3.5 For adult models
- P-3.6 For acceptance of consequences resulting form actions taken.

Educational Needs

- E-3.1 To use fundamental life skills for self expression.
- E-3.2 For abstract thinking.
  - E-3.2.1 For complex problem solving techniques.
  - E-3.2.2 To apply general principles to particular situations.
- E-3.3 To establish educational and/or career goals.
  - E-3.3.1 For guidance and counseling on continuing education and/or careers.

    - E-3.3.2 For career exploration.
    - E-3.3.3 For career preparation.
- E-3.4 For experiences to provide information.
    - E-3.4.1 For information about civic responsibilities.
    - E-3.4.2 For information about home management and child rearing.
    - E-3.4.3 For information about growth and development, including variations in growth patterns.
    - E-3.4.4 For information about self improvement techniques.
- E-3.5 For leadership skills
    - E-3.5.1 To participate in the planning of one's own activities.

4.00 Late Adolescence

Late adolescence has been identified for this study as including persons eighteen through twenty-one years of age. Sociological, psychological, and educational needs of learners in this age group include the need:

Sociological Needs

- S-4.1 For heterosexual relationships.
    - S-4.1.1 For a sense of "desirability" to members of the peer group
    - S-4.1.2 For awareness of differences in persons of all ages.
    - S-4.1.3 For acceptance by others for inter-personal qualities.
- S-4.2 To recognize oneself as an individual.
    - S-4.2.1 For a strong self-image in relation to peer group activities.
    - S-4.2.2 For an adult sex role in a social atmosphere.
    - S-4.2.3 For feed-back on how others view him/her.
- S-4.3 To accept one's role as a responsible citizen.
- S-4.4 To recognize inadequacies of the peer group and family without undue criticism.
- S-4.5 To acquire economic independence
    - S-4.5.1 To manage personal finances while continuing education and/or entering employment.
- S-4.6 To use human relation and communicative skills in social interaction.

Psychological Needs

- P-4.1 For a socially acceptable physical and personal appearance.
    - P-4.1.1 To possess self-confidence.
- P-4.2 To achieve an adult sex role.
- P-4.3 For a personal philosophy of life.
    - P-4.3.1 To accept a personal set of values and an ethical system to guide behavior.
- P-4.4 For personal and emotional independence on an adult level.
- P-4.5 For independent thinking with less need for models.
- P-4.6 To accept responsibilities for obligations.

Educational Needs

- E-4.1 To use fundamental life skills for communication andsupport of an occupational role.
- E-4.2 For mature intellectual functioning.
- E-4.3 To prepare for entry into the job market and/or continuing education.
    - E-4.3.1 For career awareness.
    - E-4.3.2 For career exploration.
    - E-4.3.3 For career preparation.
    - E-4.3.4 For guidance and counseling in careers and/or continuing education.

E-4.4 For information necessary for everyday living.
    E-4.4.1 For information for personal interest.
    E-4.4.2 For information about current events.
    E-4.4.3 For information about efficient use of leisure time.
    E-4.4.4 For information about recreational activities that require less time and greater intellectual abilities.
E-4.5 To utilize leadership skills.

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"Exhibit B"

SCHEMA

Basic Principles for Agriculture and Agribusiness Education

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Purposes of Agriculture and Agribusiness Education

↓

Functions of Agriculture and Agribusiness Education

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Curriculum Objectives by Function

↓

Instructional Level Objectives

↓

Suggested Subject Matter

↓

Suggested Learning Activities
(Lower Elementary, Upper Elementary, Junior High, Senior High, Post-Secondary)

*PURPOSES EMANATING FROM BASIC PRINCIPLES OF AGRICULTURE & AGRIBUSINESS EDUCATION

It is the purpose of Agriculture and Agribusiness Education to:

1. Develop understandings and skills in the management of factors, forces, processes, and resources involved in the conduct of agricultural enterprises.
2. Provide a variety of vicarious and direct learning experiences based on the individual needs and interests of the learner, that will expand the learner's understanding of agriculture and develop the personal requisites for agricultural employment.
3. Assist the learner in understanding the relationship between actions and consequences and the effects of consequences on personal goals and desires.
4. Develop an understanding and appreciation of the interdependency of agriculture and the entire economic and social structure of the community, state, nation, and world.
5. Serve the needs of individuals and groups in developing competence in personally satisfying and socially responsible knowledge, skills, and occupations leading toward self-fulfillment and social viability.
6. Continually assess the direction and impact of current and emerging educational trends and activities, and make appropriate curriculum improvements.
7. Solve problems which bring learners into contact with facts and generalizations which will have value to them as they assume the duties and responsibilities of agricultural employment, home life, and citizenship.
8. Develop an understanding and appreciation of the interdependent relationships within the agricultural industry.
9. Fulfill the basic human needs of society by assuring a continuing quantity of raw and processed materials through the development of the necessary knowledge and skills by interested individuals.
10. Assist the learners in developing their own system of values based on an analysis of the consequences of their wishes, desires, and wants.
11. Develop an understanding of and a cooperative attitude toward legitimate interest groups as these groups interact with agriculture.
12. Develop in learners those skills in judgement, exact reasoning, and decision making necessary to solve problems that they will encounter in both their school life and their life outside of formal education.
13. Assist learners in coping intelligently with constant and significant changes that they will encounter in their personal, social, or professional lives.

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* For discussion only

15

FUNCTIONS OF AGRICULTURE AND AGRIBUSINESS EDUCATION

Agriculture and agribusiness education efforts at all levels of instruction in Iowa are concerned with the total agricultural situation in the United States and the world. Such education should not be limited to the development of specific skills and technical knowledge. This means that somewhere in the program, three functions must be performed. First, there is the function of educating individuals for employment in the field of agriculture and agribusiness (occupational awareness, exploration and preparation). Secondly, there is a need at all educational levels for avocational agricultural coursework so that other students and adults may take courses of interest to them. Thirdly, in view of the crucial importance of food, it is essential that insofar as the resources permit, instruction be given in the significance of agriculture, food, and food production. This instruction would not have to be given exclusively by the agricultural instructor, but it may well be given by the other educational personnel who have or can acquire the competence for such teaching. However, agricultural education personnel must be committed to these goals and must provide the necessary leadership in agriculture and agribusiness education for all students, including the non-vocational students throughout the school.

Objectives

Function 1

To educate and prepare individuals for employment in agricultural occupations.

Curriculum Objectives

1. Develop an awareness of occupations, occupational requirements, and trends in agriculture.
2. Explore occupations in agriculture.
3. Match personal aptitudes with occupational requirements.
4. Develop understandings of that knowledge requisite to successful employment in agricultural occupations.
5. Develop those skills requisite for initial employment in that particular occupation.
6. Develop those skills requisite for occupational mobility within agriculture.
7. Make occupational decisions.
8. Develop the awareness of function, role, value, and types of work.
9. Develop an awareness of self, self-esteem and worthiness, and the relationship between self and work.
10. Adjust to changing agricultural employment situations.
11. Develop understandings of the interrelationships of agriculture with other industries and occupations.

Objectives

Function 2

To provide opportunities for avocational studies within agriculture.

Curriculum Objectives

1. Explore avocational activities in agricultural interest areas.
2. Analyze how avocational pursuits can contribute to and enhance one's lifestyle.
3. Determine avocational activities in agriculture appropriate to personal aptitudes and interests.
4. Determine procedures in becoming involved in avocational agricultural activities.
5. Explore specific agricultural subjects of interest.

Objectives

Function 3

To develop an awareness of and an appreciation for the significance of agriculture, food, and food production.

Curriculum Objectives

1. Analyze the role agriculture has played in meeting basic human nutritional, fiber, and shelter needs.
2. Recognize the agricultural contributions to local, state, national, and international economies.
3. Appraise the role of food production and distribution processes in solving problems of world food shortage.
4. Distinguish interdependent relationships between the agricultural industry and nonagricultural industries.
5. Distinguish interdependent relationships within the agricultural industry.
6. Describe the influence of economic, social, and political trends on the agricultural industry and food production.
7. Differentiate the contributions of agriculture to the development of social, economic, and political societies.
8. Describe the contributions of food production techniques to satisfying changing consumer wants and desires.
9. Describe the contributions of agriculture to increasing the standard of living.
10. Analyze the interdependent relationship between agriculture and the environment.
11. Explain the flexible role agriculture will play in meeting future societal needs.

Function #3

To develop an awareness of and an appreciation for the significance of agriculture, food, and food production.

Curriculum Objective

1. Acquire knowledge of the role agriculture has played in meeting basic human nutritional, clothing, and shelter needs required for everyday living.

Instructional Objective

A. Identify the basic nutritional needs of humans. (Lower Elementary)

Suggested Subject Matter

1. Basic four food groups.
2. Essential nutrients needed for human growth and development--protein, carbohydrates, fats, minerals, and vitamins.
3. Nutrient requirements of humans at various age levels.
4. Agricultural commodities used to meet human requirements.
5. Production and distribution systems of agricultural products.

Suggested Learning Activities

1. Visit a grocery store and observe various areas representing the basic food groups.
2. Listen to a school nurse explain the need for a balanced diet.
3. List the foods eaten on the previous day and explain why each food was eaten.
4. Using an encyclopedia, the National Geographic, and other resources read about the diet of the people in a foreign country in which you are interested and prepare a report about their diet.
5. Collect the labels from canned foods. Try to determine from which part of the U.S. or world the food comes. Plot these locations on a map.
6. Visit a dairy farm, dairy, and grocery store to observe milk from production to consumption.
7. Study various grains (e.g. wheat, oats, corn, barley, etc.) and prepare a list of products at home which were made from each.
8. Prepare a collage on a poster board showing foods from each of the four basic food groups.
9. On a map of the world, place a label on each country showing which cereal grains are most consumed by the people of that country.
10. After studying about the early days of America, list the foods eaten by the American Indians.

Function #3 (Objective 1 A. continued)

11. Prepare a poster which shows various foods from each food group and how these foods help your body grow.
12. Plan nutritious snacks for a class party (i.e., Halloween, Christmas, Valentine's Day, etc.). Identify which food groups the snacks represent and which essential nutrients are provided by the snacks.

Resource Material

(To be completed during field testing.)

Instructional Objective

1. B. Identify the basic clothing needs of humans. (Lower Elementary)

Suggested Subject Matter

1. Agricultural products used for fiberous clothing materials (cotton, wool, silk, linen, etc.).
2. Agricultural products used for non-fiberous clothing materials (leather, furs).
3. Basic procedures used in processing raw materials into clothing material.
4. Clothing customs of people from various cultures.
5. Clothing requirements of people from various climates.

Suggested Learning Activities

1. Prepare a display using natural and synthetic fibers.
2. Prepare a report contrasting clothing requirements of persons from at least two different climates.
3. Study clothing labels on clothing items and record the natural fiber content.
4. Observe sheep being sheared on a local farm and describe the appearance and texture of sheep wool.
5. Prepare a poster matching types of clothing materials to the agricultural raw products they come from.
6. Study the clothing customs of a foreign country and discuss your findings with other members of the class.
7. Visit a woolen mill to observe basic processing procedures and list each major step in material processing.
8. List the types of clothing worn at different seasons of the year in your own community.
9. Make a list of clothing coming from animal sources such as wool, leather, etc.
10. Read about the tanning process in leather making and prepare a written description of the major steps involved.
11. Tour a museum to observe early trends in clothing.

Resource Material

(To be completed during field testing.)

Instructional Objective

1. C. Identify the basic shelter needs of humans. (Lower Elementary)

Suggested Subject Matter

1. Shelter from the environment.
2. Types of shelter common to different climatic conditions.
3. Agricultural products used in building construction.
4. Lumber processing and distribution.
5. The changes in shelter construction through the history of our country.

Suggested Learning Activities

1. Visit a housing construction site and list the parts of the house that contribute to shelter.
2. Using an encyclopedia or the National Geographic magazine, prepare a report describing the houses and buildings of a country you would like to visit.
3. Visit a lumber yard and identify different types of building materials and their uses.
4. On a class outing, observe different types of materials used in housing construction.
5. Construct a model home (frame house, tepee, log cabin, sod house, etc.) representing a specific time or location in the United States.
6. Read the book "The Three Little Pigs" and discuss the appropriateness of building materials for particular needs.
7. Tour a museum to observe early trends in shelter construction.

Resource Material

(To be completed during field testing.)

Instructional Objective

1. D. Explain how agricultural mechanization has increased efficiency in agricultural production to satisfy increasing demands for food, clothing, and shelter. (Junior High)

Suggested Subject Matter

1. Changes in ag mechanization in the past fifty years.
2. Increases in ag production in the past 50 years.
3. Migration of farm people to urban areas.
4. Types of ag machinery available in ag production and processing.
5. Labor requirements per unit produced and processed.
6. Designs of machinery in the future.

Suggested Learning Activities

1. Visit a farm in the community and list the kinds of machinery present.
2. View a film on the history of the development of agricultural machinery and write a one-page report explaining the benefits to consumers.
3. Interview a farmer or machinery dealer and discuss the machinery requirement for farms of 200 acres or less; 200-400 acres; 400-600 acres; and 600 or more acres in size.
4. Visit a farmer and discuss how increased machinery size has reduced his labor requirements.
5. Using small discussion groups, prepare an outline and oral presentation on the development of milk processing in 1900, 1920, 1940, 1960 and the present method.

Resource Material

(To be completed during field testing.)

Instructional Objective

1. E. Identify the major innovations in the agricultural industry and the effect that they have had on meeting basic human needs. (Senior High)

Suggested Subject Matter

1. Percent of personal income spent for agricultural products.
2. Major agricultural innovations
    a. Hybrid seed
    b. Labor-saving machines
    c. Tractors
    d. Man-made fertilizers and chemicals
    e. Use of computers in agricultural production and processing
    f. Feed additives and growth regulants
3. Increased agricultural production in the past 50 years.
4. The effect of education on increasing the adoption of agricultural innovations and improved farm practices.

Suggested Learning Activities

1. Prepare a chart showing the increasing corn yields on a five-year basis from 1940 until the present time.
2. Prepare a chart illustrating the level of educational attainment of farmers over the past 75 years.
3. Conduct a cross-pollination project with corn to show how hybrid seed was developed.
4. Itemize expenditures on agricultural items purchased for family use during a one-week period.
5. Write a research essay on the effect of agricultural production on one of the following: hyrid seed, labor-saving machines, feed additives and growth regulants, tractors, use of exotic breeds, man-made fertilizers and chemicals, computers in agriculture.
6. Visit seed farms in the area and observe how hybrid seeds are produced.
7. Prepare a display on the effect of feed additives and growth regulants on animal production.
8. Write a paper on the development of soybean varieties.
9. Grow demonstration plots showing differences in hybrid seed and corn from a farmer's bin.
10. Invite a resource person to speak about the use of computers in record keeping.
11. Prepare a written report describing the impact of exotic breeds on the U. S. beef industry.
12. Run an in-class demonstration using several fertilizer application rates on corn.

Resource Material

(To be completed during field testing.)

Instructional Objective

1. F. Analyze how agricultural research has improved the processes of the agricultural industry in meeting basic human needs. (Post Secondary)

Suggested Subject Matter

1. Plant breeding research in agricultural production.
2. Research in animal breeding and its effect on meat production.
3. Research in animal nutrition to improve livestock performance.
4. Research in plant fertility to meet requirements for optimum production.
5. Land grant college system and its impact on agricultural research.
6. Pesticide research necessary for the improvements in yield and quality of agricultural products.

Suggested Learning Activities

1. Establish a demonstration plot using varying levels of fertilizer application rates and chart yield responses to each application rate.
2. Using the Journal of Animal Science, write a report analyzing a current research topic and its effect upon the livestock industry.
3. Trace the history of the land grant college movement in the U.S. and present an oral presentation depicting how it has contributed to the advancement of agricultural technology.
4. Review articles pertaining to DES and prepare a report describing the impact DES has had on the beef industry.
5. Visit an outlying ISU experimental farm and prepare an oral presentation summarizing research being conducted and the potential impact it may have in meeting basic human needs.
6. Using a livestock improvement consulting service, select herd sires and predict the increases of performance and carcass traits expected in the offspring of a sample herd.
7. Establish a demonstration plot using various pesticides and application rates and compare with a check plot. Prepare a display charting the responses in terms of yield and pest control.
8. Analyze the reasons for the selection of plant characteristics of each parent strain in the development of an improved hybrid.
9. Following an interview with a plant breeder, prepare a display exhibiting the steps taken in the research and development of improved seed varieties.
10. Using interpretive test data (soil test, tissue test, etc.) prepare a fertilizer recommendation that will supply nutrients for a 150-bushel corn crop.

Resource Material

(To be completed during field testing.)

Exhibit C

Project 2000 - Phase IV

Committee Recommendations

I. Sequencing instructional content and learning activites.

A. Who should be involved in sequencing?

-Teachers at all levels (elementary, junior high, senior high, post secondary); administrators (curriculum coordinators, principals, departmental chairman) and consultants (university, AEA, media specialist, community resource people).

-Guidelines should be developed by Project 2000 staff members to suggest structure and instructional content for each grade level.

B. What are the major areas involved? Objectives? Concepts?

-Should have a humanistic approach which includes the development of a self-concept as well as affective and cognitive learning.

-Use should be made of the career development model with experiences sequenced through the awareness, exploration and preparation phases.

-Care should be taken to be sure goals and objectives are measurable.

-Basic objectives and concepts should be revised to reflect community needs and resources.

-Major disciplines of sciences, home economics, and social studies would be most involved.

C. How do we avoid repetition and needless duplication?

-Prepare a flow chart (K-12) to sequence agricultural concepts and objectives by grade level and curriculum areas.

-Identify criteria to design the flow chart around P.E.R.T. time line.

-Expand a sequencing flow chart to K-14 or even into adult education levels to avoid duplication and replication.

-Extensively use curriculum committee representatives from all levels.

-Develop competency based entrance exams to allow advanced standing in grades 13 and 14.

-Develop an evaluation system composed of pre and post tests and a self-analysis sheet that tells teachers, parents, and students where the student stands at any point in the educational process.

D. How do we facilitate articulation between teachers and/or grades?

-Both administrative and financial commitments must be made to allow teachers from all disciplines to interact in the sequencing process of curriculum development.

-Project 2000 staff should conduct inservice activities or workshops to help train teachers and promote communications.

-Teachers should understand the state of child growth and match those with concepts from Project 2000 and local school goals.

-A plan should be developed to facilitate inter and intra-disciplinary discussion interaction and curriculum development.

E. What are activities that will insure sequencing?

-Plan an on-going assessment to determine progress on the flow chart.

-Teachers observe student progress from one grade level to the next.

-Questionnaires to students to determine their progress.

-Regularly scheduled departmental meetings.

-Regularly scheduled reports to board of education.

-Board members and advisory members visit and observe programs in action.

-Evaluate sequencing that has already been established.

-After pilot testing, conduct an inservice meeting of total staff to identify and evaluate activities carried out.

II. Integrating agricultural concepts into the present curriculum. (K-14)

A. What are the procedures for monitoring the integration of agricultural concepts?

-Periodical update and revision of curriculum materials.

-The steering committee in charge of local implementation should do the monitoring, the committee should represent all instructional levels.

-Members of the steering committee should be represented on the advisory committee.

-Time be allowed for a specific person to monitor integration and articulation activities.

-Prepare a communications instrument to inform other teachers of activities being carried out to facilitate integration.

-Utilize feedback of students.

-Make the community aware of the program and how integration of subject matter works.

-Team teach using more than one teacher to deliver instruction.

B. How do we coordinate activities between grade levels?

-An instructional decision-making group should be in charge of the final job of coordination, made up of various grade level personnel.

-Utilize teacher expertise to coordinate activities between grade levels; this assumes that there is ample interaction between teachers of different grade levels.

-some coordination will already have been dictated by the sequential nature of the learning activities in the curriculum guide.

C. What procedures should be followed to gain acceptance of the curriculum guides on the part of the local staff and a commitment to integrating the curriculum concepts into their instructional program.

-Involve local teachers in decisions on how the material will be taught.

-Provide incentives to work with the project (money, time, positive peer support, success orientation)

-Provide special problem college credit for participation in the project.

-Make the project part of the community and/or board policy to guarantee supervision of project activities at the local level.

-Obtain a commitment from the administration.

-Provide teachers with resources and learning activities.

-Provide inservice activities to help teachers plan for student involvement.

-Allow teachers to assist in evaluation and revision of curriculum.

III. Supervising agriculture and agribusiness education program activities (K-14).

A. How do we organize committees or individuals needed to monitor curriculum K-14?

-Initiate curriculum coordination-administrator, elementary, junior high, senior high - with equal representation from all levels.

-Include area school, DPI, and community agribusinessmen on the advisory committee.

-Initiation and continuance will result from outside pressures (DPI, NCA evaluations, local board, etc.)

-Monitor at two levels -- local school district and area school
level -- solicit suggestions for monitoring by test site personnel
-- set up an articulation committee at the AEA level
-- use local curriculum director with representatives from various instructional levels (larger systems)
-- in small systems, committee might be headed by the guidance counselor, principal, etc.

-Preservice people organize the monitoring committee to fit their own systems.

-Articulation is the key word.

B. What is the relationship between levels of instruction (elementary, junior high, senior high, post-secondary) and how are they coordinated?

-All levels should be represented on the advisory committee with activities coordinated by a committee chairman articulate.

-Secondary-individual instructors for preparatory program. Other secondary instructors use the preparatory instructor as a resources.

-Elementary and junior high depend on themselves and the curriculum coordinator.

-Post-secondary depends on preparatory instructors and avocational instructors.

-ARTICULATION is still the key word.

C. How do we monitor in-class instruction?

-Identify in-class instructional objectives.

-Pre-test and post-test measures.

-Use interest inventory and classroom observations.

-Use community, parent and student feedback.

-Use steering committee observations.

-Develop a checklist to determine if objectives were met.

-Use a summary by individual teachers working on the project.

-Keep all monitoring "student centered" and not in terms of teacher evaluation.

-Observe group interaction of students with the teacher.

D. Who and how do we schedule agriculture and agribusiness education activities?

-Curriculum committee chairman with administrative approval.

-Use state directed activities.

-Use resource persons to allow teachers free time for supervision.

-Plan late start or early dismissal on class days for committee work.

-Assembly programs or special activities days.

-Plan activities by grade level.

-Use two types of activities: 1) activities that could be scheduled directly into existing curriculum (classroom) or 2) outside activities coordinated through the principal, curriculum director, etc.

-Pilot schools should be used to implement programs in other schools.

-Scheduling could be set up by the staff of local steering committees.

E. How should we use outside advisory persons (community and state)?

-Use to identify community needs

-Provide feedback and public opinion on related items.

-Provide a resource file of resource persons, available jobs, employment opportunities and requirements, special topics.

-Use the state group to look at overall manpower needs, avocational needs, etc.

-Use local group to influence local opinion and sell the program.

-Provide for some members of the advisory committee to continue throughout the project to insure continuity.

IV. Determining the amount of content at specific instructional levels (K-14).

A. How can we determine the present level of personal development and agricultural achievement by the student?

-Survey teachers to determine agricultural concepts being taught.

-Survey teachers to obtain teacher knowledge, background, and attitudes.

-Survey students to determine agricultural backgrounds and knowledge.

-Determine the availability of vocational agriculture facilities.

-Use occupational preference tests to determine students interest in agriculture.

-Pre-test and post-test students to determine levels of students.

-Provide a standarized testing of students in agriculture (competency based).

-Employer evaluations.

-Number of students entering ag-related careers.

-Look at the community attitude toward agriculture.

-Evaluation of the instructors of students' performance based on previous instruction received.

B. How can we determine content to meet student needs?

-Needs of individuals vary.

-At lower levels, agricultural concepts must be generalized.

-Utilize the same persons who determine instructional needs.

-At higher levels, content might be determined by career or avocational objectives.

-Content may be determined by a background survey.

-Survey the community about their attitudes about agricultural education.

-May depend on the image of agriculture in the community.

-Are we to teach concepts that apply directly to current student needs or do we teach because of a concepts carry-over value?

-Fit concepts to the developmental stage of student.

-Teachers should have authority in determining what the student needs are.

-Survey students' occupational and avocational interests.

-Use occupational analysis, such as competency studies, manpower information, and census data.

-Use existing curriculum materials (Iowa guides, other guides).

-Use follow-up data on graduates and dropouts.

-Availability of resources may determine what concepts are taught and at what levle.

C. How can we match agricultural concepts with instruction levels (grades)?

-Determine the availability of agricultural materials.

-Determine students' stage in career decisions making process.

-Sequencing or coordinating of instructional materials may dictate what concepts are taught when.

-Physical facilities may determine materials taught.

-Willingness of the teacher to accept change in curriculum will count.

-Utilize experience and expertise of instructors at all levels.

-Continue to match students educational, sociological and psychological needs with agricultural subject matter.

-Provide communication between teachers for help in determining teachable concepts at various levles.

-Personal development is the important consideration in student advancement.

-Use the advisory committee to help in the determination.

V. Measuring progress of local schools in meeting curriculum goals K-14.

A. What criteria should progress be based on?

-Based on the stated objectives according to the three functions of agriculture and agribusiness education.

1. Career awareness of agricultural occupations
2. Relationship between agriculture and nonagricultural industries

3. Skills necessary for initial employment
4. Interest and enthusiasm shown (especially in the lower grades)
5. Number enrolled in secondary and post-secondary ag programs

-Use local board activites -- was money allocated? -- was plan realistic and obtainable? -- did the community notice progress?

-School personnel -- was money available? -- were there restrictions placed on the use of the money? -- did committees function effectively?

-Student -- did desired change occur? -- did students at all levels participate in planning, implementation and evaluation?

-Compare results back to the objectives and functions of ag education.

B. What types of measurement activities or methods should take place?

-Self evaluation, instructor evaluation, employer evaluation, employment success, number of persons employed in ag occupations.

-Student progress assessed by: observation, questionnaires, tests, criterion referenced, attitude and interest scales.

-Pre-test and post-tests for both interest and knowledge.

C. When should progress be measured?

-Continuously.

-Continuous, but at least annually for board administration.

-Teachers and department heads measure at least monthly or when units have been completed.

-Evaluation should be timely and determined by the type of objective being established.

-Intermediate measurement should take place during the learning experience.

-Measurement should be used for the purpose of advising, correcting or redirecting students and/or the program.

D. What should the results be used for?

-Re-evaluating approaches for strengths and weaknesses.

-Re-evaluating the level at which teaching takes place.

-For teacher accountability.

-For future planning.

-For financing, staffing, etc.

-For increased articulation.

-For enhancing enrollment.

-To update curriculum or implementation plans.

-To determine progress.

-Inform parents and community persons about progress.

-To provide positive reinforcement and boost morale for teachers.

E. Who should conduct measurement activities?

-Everyone: employers, classroom teachers, guidance personnel, steering committee, advisory committee, parents.

-Teachers should administer, analyze and interpret.

-Evaluation specialist.

-Project 2000 personnel or other delegated the responsibility to make changes in the project activities.

F. How should the results be expressed?

-Use both written and verbal means of reporting: report to school board; inform community via newspaper, radio , TV; special interest groups (PTA, etc.); to curriculum planning committees; and state department of public instruction.

-Level and use determines the mode of expression.

-Graphs, charts, new releases, verbal reports.

-Provide summary and conclusions.

-Implications for change.

VI. In-service training for teachers.

A. Who will supervise, lead, and organize in-service training for teachers?

-Initially, in-service training must be led by Project 2000 staff.

-In-service committee in local school district should coordinate and assist agriculture and agribusiness in-service specialist in presenting in-service education to total staff in local district.

-People involved should include administrators, ag educators, elementary groups, AEA, DPI personnel.

-Project 2000 staff provide assistance.

-Local ag teacher should be actively involved in supervision of the inservice meetings.

B. What will the in-service training consist of?

-A real need for the program should be established.

-Should include techniques for assessing student needs, abilities and knowledge.

-Distribution of instructional materials and emphasis on how to use.

-Existing curricula should be surveyed to determine ag concepts being taught.

-Subject matter content.

-Should have initial workshops for interested teachers at K-14, these teachers would serve as contacts between each level -- concerned with logitudinal articulation between grade levels.

C. How much time will be required?

-Teacher time involved would depend upon grade level and subject area.

-Would depend on ag background of teaching staff.

-The commitment of each school should be determined and how much time they will be willing to give to in-service should be determined.

-Must be aware of local contract specifications on time allocations to inservice.

D. How will time be provided for in-service training?

-Release time will have to be provided.

-Payed in-service on Saturdays if finances available.

-Accredited inservice provided.

-Integrate follow-up in-service into existing in-service scheduling.

E. What type of follow-up in-service will be needed for revising guidelines?

-Summary by each participating instructor including evaluation and suggestions for change.

-Follow-up information.

-Key teachers should meet with Project 2000 staff to keep them aware of changes or revisions of guidelines.

-Monitoring committee could be revising guidelines throughout program.

-Follow-up dealing with problems and concerns that arise from initial implementation.

-Much depends upon evaluation of program.

-Evaluation of students in program could influence follow-up content.

F. What provisions can be made for providing in-service materials?

-AEA could be involved in collection and distribution of materials.

-Local concerns might be willing to help in financing of materials.

-Project 2000 staff should collect a list of free teaching materials that could be handed to local teachers.

-Project 2000 will have initial development responsibilities.

-Summer workshops for program participants to develop materials.

VII. Ascertaining what agriculture and agribusiness education concepts are currently being taught and how to build new concepts into what is presently being taught (K-14).

A. What administrative guidelines should we be concerned with in determining what is currently being taught?

-Part of a district wide career education program.

-Use cognitive mapping to determine how students learn.

-Obtain course outlines of all courses taught (learning activities, resource materials, etc.)

-Determine where in course outlines agriculture is being taught.

-Integrate Project 2000 materials into present courses.

-Survey grade levels, departmental objectives, to determine how agriculture is taught.

B. Who should organize the review of present agriculture and agribusiness concepts taught?

-A review committee of community ag industry people.

-Educators and administrators.

-Curriculum coordinators.

-Should be the function of a steering committee with representatives of all levels.

C. How can we identify places in the curriculum where new concepts can be taught?

-Analyze present curriculum and identify voids in the function.

-Look at student needs and interests.

-Look at Project 2000 recommended placement and adjust accordingly.

-Identify areas of overlap and omission and include new concepts to fill in the gaps.

-Strike out unnecessary items from the curriculum as they are identified.

-Increase the emphasis on agricultural instruction.

D. How can we adjust guidelines to meet the current local curriculum situation?

-Develop short-term and long-term goals.

-Provide evaluative instruments to measure the attainment of goals.

-Include community college input on meeting needs at all levels.

-Continually study individual and societal needs and revise curriculum guidelines to meet changes.

-Provide local schools with options in determining objectives.

VIII. Involving community representatives and agencies in implementing agriculture and agribusiness education programs in local schools.

A. What agencies and community resources should be involved in agriculture and agribusiness education programs?

-Advisory councils (representatives of business and industry).

-Government Agencies (county extension, college extension, conservation, Department of Defense, Welfare, FHA).

-Agricultural Industry including producers, processing, manufacturing, promotion, wholesale, and retail distribution, financing, insurance.

-Agricultural Organizations (Farm Bureau, NFO, Pork Producers Council, Co-op, etc.).

-Community organizations (Churches, service clubs, hobby groups, consumer groups).

-Mass media (newspaper, TV, radio).

B. How can they be involved?

-They can be involved in the decision-making on the advisory level.

-As resources - directly in classroom, field trip hosts, source of educational materials, financing.

-Would be helpful in evaluation and updating.

-Implementation should be done by educators.

C. What kind of activities could be done?

-Program development
  advisory committee
  resource person

-Participation
  host classes, field trips, etc.
  promotion of program
  providing services
  providing expertise

-Financing/sponsoring
  providing materials and written resources
  providing teaching aids
  providing incentives
  indirect (influencing use of tax dollars)

-Evaluating and updating
  advisory
  aquiring public opinion
  employee evaluations

D. How can these activities be organized and coordinated?

-Coordination committees should be organized from instructional levels to coordinate use of resource persons to prevent overlap. Resource guide could be developed by this committee.

-Flow chart of agricultural education and experiences at each level could be developed.

-Community goals and objectives should be developed and merged with goals and objectives of Project 2000.

E. Who should coordinate these community activities.

-Overall coordination

A. Administrative staff
   principals
   curriculum director
   vocational director
   agricultural instructor
   other classroom teachers

-Functional coordination

A. Preparatory
   agricultural instructor
   other classroom teachers
   vocational director

B. Avocational
   adult coordinator
   agricultral instructor
   guidance
   community

C. Awareness and Appreciation
   curriculum coordinator
   career education director
   principal
   agricultural instructor
   other classroom teachers

F. At what level should these activities take place?

-When using community representatives and resources, consideration should be given to the plan of emphasizing awareness at the elementary level, exploration at the junior high level, and preparation at levels 10-14.

IX. Providing experiences (classroom, shop, on-the-job) K-14.

A. What special provisions should be made for the following experiences: classroom, laboratory, community-based, experiences beyond the community, avocational?

-Provisions for scheduling of field trips, flexible scheduling, transportation.

-Cooperative arrangements with other local districts, AEA's, area schools.

-Community involvement - financial commitment, use of community resource people, needs of community met, cooperative training session for parents.

-School facilities and off-site facilities (laboratories).

-Cooperative experience for student in occupational preparation.

-Staff competent and trained in providing experience.

-Advisory councils.

-Material resources, media, equipment.

B. How can we coordinate experiences with formal instruction?

-Season planning in curriculum development, flexible scheduling, (summer instruction).

-Support of advisory council, faculty, administration, school board, parents.

-Leadership and direction from DPI, use of AEA services, support of state legislation.

-Pre-service and in-service training of teachers.

-Experiences used as a basis for formal instruction rather than the latter dictating the former.

-Student experiences with other students and resource people.

C. How can we identify idealistic experiences based on student needs (adapting experience to student needs)?

-Evaluation from students on how well the experience met their needs.

-At lower levels, the teacher is more responsible for identification of experiences, as student grows older he should be involved in designing realistic experiences for the class to make the class meaningful to him.

-The student's individual needs should be identified.

-Use of the community, formal educational experiences, business and industry, and parents.

Appendix D

Evaluation

An Evaluation of Iowa State University's

"Strategies for Revision of Curriculum and Program Restructuring of Vocational Agriculture in Iowa"

Phases I and II

Mid-project Report

Prepared by

State of Iowa
Career Education Advisory Council

Des Moines, Iowa 50319

Principal Investigator

William E. Klug

under contract with

Iowa State University
Ames, Iowa 50010

July, 1976

Preface

Iowa State University received a grant from the U.S. Office of Education to complete a project entitled "Strategies for Revision of Curriculum and Program Restructuring of Vocational Agriculture in Iowa" (Federal Catalog Number 13.498). The Department of Agriculture Education is conducting the project. The major focus of the project is the development of a new curriculum for agriculture and agribusiness education for implementation in Iowa's high school and area community college vocational agriculture programs.

The State Advisory Council is party to a contract with Iowa State University to perform an independent third party evaluation of the project. The purposes and methods of the evaluation are specified in the contract. The general scope of the Council's evaluation, as contained in the project proposal, includes the:

(1) determination of the extent to which objectives of the project have been met;

(2) identification of factors related to successful achievement of project activities;

(3) identification of factors that are hindering the successful implementation of project activities; and

(4) suggestions of new project strategies that will enhance the success of the project.

This project has been subtitled, "Project 2000", and is divided into four phases. A set of objectives has been written for each of the four phases within the overall rationale of the project. The Advisory Council will submitt interim evaluative reports upon completion of each of the four phases. These reports will examine the degree of effectiveness to which the objectives of each phase are accomplished.

A committee of three Council members have been appointed, along with the Council staff, to observe project conferences, meetings, and like activities. The Council's staff will monitor all significant project activities, establish the design for the evaluation, maintain a high level of reciprocity with Project 2000 staff, keep all Council members appraised of evaluation activities, and prepare and submit interim evaluation reports to the Advisory Council for final approval. The criteria for judging the quality of this project will be largely determined by the combined opinions from the observations of project activities by those participating in the activities, including Advisory Council personnel.

Since the interim reports are designed for use primarily by the staff of Project 2000 and officials in the U.S. Office of Education, it is suggested that the reader of the evaluation reports make reference to the project proposal. This will assist the reader in developing a complete comprehension of the implications of the evaluation reports.

The following two pages highlight the evaluative observations and recommendations of the first two phases of this project as developed by Iowa's State Advisory Council on Career Education. Appendant to these summaries are the interim evaluation reports and addendums which coincide with Phases I and II of Project 2000.

Capsulizing Observations and Commentary

Phase I

The development of the philosophic statement, its affirmation by project consultants and advisory committee and its reaffirmation by practitioners of vocational agriculture education can be credited to a high degree of planning and efficiency of performance in meeting this objective.

> *We recommend that the project's philosophy, in some manner, be properly identified as being pragmatic.*

The input from vocational agriculture instruction during the development of the survey instrument has created an awareness of the project at the applied level.

> *The major benefit of the instructor input meeting was the compilation of practices and opinions from the instructors level. The instrument would not have been a true reflection of the actual situation in the field had it been done in another manner.*

By involving instructors and outside consultants the project has attacked the problem on a statewide basis. This cooperation has placed the project on a reasonably sound basis.

> *One instructor phrased it this way: "In the past we looked only into the community to decide which areas we should emphasize as a teacher. We really didn't look at the perspective as to how we got the job done. The project is looking into this".*

The survey instrument which reached 800 persons will not only broaden project awareness, but establishes a credibility and accountability among curriculum users that will be carried through to the projects conclusion.

> *Some instructors were uncertain as to the effects a new vocational agriculture program would have in their school. They recognized that there was a need for change in the existing programs, particularly a need for updating current curriculum software, but questioned the efficacy of a complete curriculum revamping.*

Deviations from the project proposal were procedural and did not in any way alter the objective for Phase I. The changes occurred through the cooperative efforts of the project staff and advisory committee were executed efficiently with a more than adequate performance from all participants.

> *We recommend that alternative strategies or process (activity) modifications from the original project's objectives which are implemented be more fully documented. The reasons for deviations need to be explained, when the decision to change a procedure was made, who made the decision, and what reasons (financial, qualitative, efficacious) were presented to justify the alteration.*

The project director and his staff are to be commended on the quality of speakers that were selected and their effectiveness in handling 'last minute' cancellations, logistical problems, and the like.

> *A prospectus should have been prepared and sent to perspective speakers so they could have had better knowledge on what the forum was to accomplish. Some of the speeches could have been enhanced and been of more use had this been done.*

The overall effect of the forum on the speakers was enthusiastic and professionally satisfying. The vast majority of the participants we interviewed were greatly pleased with the forum and the opportunity extended to them to make a contribution.

> *All the speakers were pleased to have been chosen to make presentations at the forum and learned a great deal from participating.*
>
> *All of the panelists we spoke with thought the forum was very good and would be beneficial to the project as a whole. One panelist asked the question: "Was my input worth it to the project staff?"*
>
> *The general feeling was that the work sessions were the least organized part of the forum. The charge to the listening panel - identifying trends and implications from the speakers - should have been reiterated at the work sessions and the form and direction of the assignment clarified earlier or just prior to the forum. When the organization of the first work session faltered, clarification and direction by the project staff should have been provided.*

What would you have done differently had you been conducting the forum?

> *More time should have been allocated for reaction between the speakers and listening panelists, either between presentations or through roundtable discussions.*
>
> *All but one speaker were college professors and thus removed from the very real problems of what is happening in the field. Therefore, an active, young vocational agriculture teacher should have spoken on what he says is happening within his own community and his program.*

The second major objective of the forum was to revise the basic principles statement in light of the trends and implications for the future of agriculture and agribusiness education identified at the forum.

> *It appears from our examination of the revised basic principles statement that the substantive pragmatic character of this statement has not been altered to any significant degree by the results of the forum.*
>
> *We recommend that a master analysis statement of Phase I survey items and Phase II forum implications be developed. Survey items and forum implications would be categorized under the basic principles statement orientation to which they apply.*

Definition of Terms

Advisory Council - thirteen members of the Career Education Advisory Council serving as third party evaluators of Project 2000.

Basic Principles Statement - synonomous with philosophy of vocational agriculture education in Iowa; eight principles which typify agriculture and agribusiness education.

Career Education - the totality of experience through which one learns about and prepares to engage in work as part of her or his way of living.

Evaluator - administrative and research assistant for the Career Education Advisory Council responsible for preparing evaluation reports and monitoring Project 2000 activities.

Phase - one of four steps or stages in Project 2000 leading to the development of a curriculum for agriculture education in Iowa.

Project Advisory Committee - a nine member panel serving as advisors to Project 2000.

Project Consultants - three professionals responsible for advisement on the philosophic and curriculum development phases of the project.

Project Staff - project director and graduate students employed by Iowa State University.

Vocational Agriculture Programs - instruction and curriculum in agriculture subjects at local high schools and area community colleges.

Interim Evaluation Report: Phase I of Project 2000

Introduction

The principle objective of the first phase of this project was to write the current philosophy of vocational agriculture education in Iowa. The degree of success or failure in executing this objective could affect the remaining project objectives. Therefore, Phase I activities must be examined within the context of the project rationale as a whole.

The rationale of the project is to "reassess the purpose and role of vocational agriculture programs in Iowa in the educational process and in meeting *current* and future societal needs". (Emphasis added) Phase I is included within the rationale and involves a three step sequence of activities. First, a new philosophy was written by the project staff through a reassessment of the existing philosophy. Second, vocational agriculture instructors identified current practices reflecting that philosophy. Thirdly, the validity and acceptance of the philosophy was tested through a survey of those persons functioning within or applying the philosophy.

Evaluation Procedures for Phase I

Some inhibiting factors or constraints partially restricted the evaluation activities of Phase I. The Council was approached to undertake this evaluation near the completion of the first phase. The Council was not able to observe the execution of Phase I activities. The evaluation design and activities for Phase I were executed by assembling and reviewing with the cooperation of the project staff, the Phase I background materials, including advisory committee meeting minutes, the project proposal, the basic principles statement, and the instrument construction papers. The major valuations and recommendations of Phase I activities represent the views and opinions of the participants in that phase. The Council gathered and compiled the participants reactions to this phase. The Council believes that this Phase I report is an accurate and valid evaluation.

The evaluation activities for Phase I attempted to determine whether the execution of the three step sequence of project activities were successful in meeting the objective for this phase. The Council assessed the quality of the current philosophic statement, the instructor input meeting for instrument construction, and the survey instrument. The evaluation activities also identified the role outside participants played in providing input during each of these three stages and their reactions to the project as a whole.

The Philosophic Statement

Procedural Review The principle objective of Phase I was to determine current basic principles and the underlying philosophy of agriculture and agribusiness education in Iowa. These principles were written by the project staff with the cooperation, advice, and recommendations of the project advisory committee and outside consultants.

The initial draft statement of philosophy was entitled 'Philosophical Constructs of Vocational Agriculture Programs'. This position paper identified six characteristics which typified vocational agriculture education in Iowa.

They included student orientations toward: "(1) individual and social needs; (2) the physical world; (3) experience; (4) pragmatism; (5) problem solving; and (6) flexibility and continuity." A brief description of the program focus of each one of the six orientations was also contained in that paper.

The philosophical construct paper was sent to teacher educators and state supervisors of vocational agriculture from the central states regions. These persons were asked to react to the philosophy by clarifying any points that were vague or ill-defined, and adding or deleting segments of the philosophy to "produce a more refined product". An additional sheet, entitled "Practices that Reflect Philosophy", was also included in this mailing. The purpose of this paper was to identify practices in the current agriculture programs that reflect the particular constructs or orientation in the original position paper. As an example, a practice reflecting the pragmatic orientation would be to provide for learning experiences outside the classroom or school environment. A summary of the comments, deletions, and other modifications to the original philosophy, submitted by the twelve teacher educators and state supervisors, was presented to the advisory committee and project consultants for review and adaptation.

A second philosophic statement was written,based on the above, and its title changed to "Basic Principles for Agriculture and Agribusiness Education in Iowa". Modifications were also made to the six characteristics or orientations. These orientations were expanded to seven by deleting the Physical World orientation and adding the Agriculture Resource Management (2) and Interrelationship of Agriculture (7) orientations. The refined "Basic Principles" statement was submitted to the advisory committee at its September meeting. Although no action was taken accepting or rejecting these principles, a review by committee members and Dr. William Stanley was suggested. At the December advisory committee meeting, a potential eighth principle, Democracy, written by Dr. Stanley, was distributed to the advisory committee for review. The Democratic orientation was refined and included with the other seven orientations into the "Basic Principles". As far as can be gleaned from advisory committee meeting minutes for January and February, this principle was not formally approved or reasons presented for its inclusion in the "Basic Principles" statement as it now stands.

The Evaluation The Council has approached the evaluation of the philosophic statement through comparative analysis of the four major divisions or branches inherent to other philosophies (realism, idealism, pragmatism, etc.). The four principle branches of philosophy, which we examined as to the degree to which they were included in the projects' philosophy, are:

(a) Metaphysics - - a theory of reality;

(b) Epistemology - - a theory on the nature of knowledge;

(c) Logic - - the science of thought or relationship of ideas; and

(d) Axiology - - a theory of values.

Our investigation sought to determine whether the projects treatment of this terminology was adequate in comparison to other philosophies.

The philosophic statement identifies eight principles or orientations which characterize agriculture and agribusiness education: (1) democracy, (2) individual and social needs, (3) agricultural resource management, (4) experience, (5) problem solving, (6) pragmatism, (7) flexibility and continuity, and (8) interrelationships of agriculture. We have constructed a simple philosophic model which illustrates the categorical specification of each of the eight orientations under one of the four major brances of philosophy. Our categorizations are based on an analysis of the narratives accompanying each of the eight orientations. (Each orientation is numbered according to the order in which they appear in the basic principles statement.)

The Philosophic Model

Branches of Philosophy	Metaphysics	Epistemology	Logic	Axiology
Basic Principle	Flexibility and Continuity (7) Interrelationship of Agriculture (8)	Agricultural Resources Management (3) Experience (4)	Problem Solving (5)	Individual and Social Needs (2) Pragmatism (6) Democracy (1)

This simple model shows that the project's philosophy is complete, i.e., its components address the fundamental foundations of philosophy.

Conclusion

As stated earlier, principles reflecting the practice of democracy were not developed at the instructor input meeting for instrument construction. It was not included in the survey instrument and, therefore, in effect, not accepted by persons in the field of vocational agriculture education. And, to the best of our knowledge, through a review of the minutes of advisory committee meetings, it was not accepted *as part of* the basic principles statement by action of the project advisory committee.

The project evaluator has prepared a separate narrative analysis of the eight orientations. For the sake of brevity in reporting it is not included with this portion of our evaluation. It is the evaluator's opinion by means of that analysis that the philosophy under investigation is of a highly pragmatic nature. This philosophy answers questions concerning reality, knowledge, logic and values almost exclusively within the parameters of pragmatism.

The Council wishes to commend the efforts of all persons involved in making the "Basic Principles for Agriculture and Agribusiness Education in Iowa" statement a complete philosophy.

Recommendations

1. *We recommend that the project's philosophy, in some manner, be properly identified as being pragmatic.*
2. *We recommend that the sixth orientation, Pragmatism, be changed to read, "Values Orientation".*

3. *We recommend that the Democratic orientation be retained as an integral part of the basic principles statement.*

(Recommendation 1 and 2 were derived from the Council's narrative analysis of the project's philosophy which has not been included in this report, but is available upon request.)

Instrument Construction

The second stage in Phase I was to develop a list of current practices that reflect the philosophy. An Instructor Input Meeting for Instrument Construction was conducted for the purpose of establishing "a means by which to confirm the philosophic base of agricultural programs at the secondary and postsecondary level". Twenty-four secondary and postsecondary vocational agriculture instructors met in September, 1975, on the campus of Iowa State University for this purpose. That meeting produced over one hundred instrument items, approximately 14 under each of the seven philosophic orientations, which illustrated how each orientation could be applied in the "field". (The eighth orientation, Democracy, was not included as part of this process, as we have cited previously.)

The Advisory Council, as part of its evaluation of this activity, interviewed by telephone six of the participants in attendance at the instructor input meeting for instrument construction. Each of the instructors, three secondary and three postsecondary, were asked a number of questions related to the effectiveness and procedures used at that meeting. The interview questions and reactions follow:

1. Did the project staff adequately prepare you or brief you as to the tasks you would be performing during the instructor input meeting?

   All of the instructors felt that the project staff more than adequately prepared them for writing the items for the instrument. Most of the instructors, however, had no or very little knowledge of the project prior to this meeting. The orientation period of this meeting cleared up many doubts and misunderstandings concerning the purpose of the project.

2. Do you feel the meeting was conducted in a manner which provided encouragement for participation of all persons?

   The instructors interviewed reacted favorably to this question. It was their opinion that the small groups provided ample opportunity for all to contribute as much as he wanted.

3. Within your own group was the majority opinion accepted on most of the items selected?

   The small groups stimulated discussion allowing every person to present his point of view before an item was accepted. Although there were disagreements on certain items, one instructor attributed this to inherent differences between secondary and postsecondary agriculture programs. Another instructor found that the "hardest thing was that most of us in a practical field as agriculture teachers had some difficulty with terminology that could be accepted by the ordinary person."

4. Do you believe that the instructor input meeting was the best way the instrument could have been constructed?

   The major benefit of the instructor input meeting was the compilation of practices and opinions from the instructors level. The instrument would not have been a true reflection of the actual situation in the field had it been done in another manner. The meeting exposed common problems, raised questions concerning the differences between secondary and postsecondary goals, and brought out discussion on community concerns.

5. Were you sent a copy of the final survey instrument?

   Three of the six instructors interviewed recalled receiving a copy of the final instrument.

6. Did its contents reflect what was produced in the input meeting?

   There was the general agreement among those three instructors that the instrument was very well done and accurately reflected the results from the instructor input meeting.

7. Do you feel there is a need to develop a new vocational agriculture program in Iowa's high schools and area community colleges?

   Reactions to this question were divided. Some instructors were uncertain as to the effects a new vocational agriculture program would have in their school. They recognized that there was a need for change in the existing programs, particularly a need for updating current curriculum software, but questioned the efficacy of a complete curriculum revamping.

   Each school has different problems and needs, each instructor has his own methods for operating his program, and there are still certain basic skills that should not be overlooked. The general feeling one gets from these instructors is that there is a need for continual updating as a result of change, but imposing a completely new program on the entire state might receive resistance due to individual instructor differences and the localized differences between schools and programs.

   Those instructors with a more favorable inclination towards a universal statewide program reasoned that a change has long been overdue. The approach taken in this project to include the sociological, economic, and psychological facets in the development of curriculum would cause people to think beyond the immediate concerns of farmers to the future needs of a larger community. Ultimately the benefits would accrue to the students.

8. Viewing the project as a whole, do you feel it is a valid way of developing a new vocational agriculture program?

   Most of the instructors agreed with the basic tenet of this question. One instructor phrased it this way: "In the past we looked only into the community to decide which areas we should *emphasize as a teacher. We really didn't look at the perspective as to how we got the job done. The project is looking into this".*

By involving instructors and outside consultants the project has attacked the problem on a statewide basis. This cooperation has placed the project on a reasonably sound basis. If it works, something similar to it could be applied to the other disciplines.

Conclusions

The instructors appreciated the opportunity to provide their input at the instrument construction meeting. They felt the meeting was conducted in such a manner which allowed equal input from all. There was some doubt as to whether the project results would be accepted on a statewide basis. Several instructors said this would depend on the status of local programs and community needs, but all recognized that updating of programs to keep pace with change was needed. All of the instructors felt that their input would be considered valuable and warrented, and that the project was well organized and functioning effectively.

Contingency

The instructor input meeting for instrument construction was not contained in the original design of this project. The project proposal states that the project staff members, assisted by the advisory committee, would develop the survey instrument.*

The Council has previously reported the opinions of secondary and postsecondary vocational agriculture instructors who participated in the instrument construction meeting in September, 1975. The responses were not only favorable from a procedural standpoint, but explicitly direct in questioning whether the instrument would have been valid and reliable had it been developed in any other manner or by a different group of people. Although not originally written into the project proposal, the benefits accrued through this meeting will be evident throughout the duration of the project.

The Survey Instrument

The items produced at the instructor input meeting for instrument construction formed the core of the project's "Survey on Education in Agriculture". The purpose of this survey was to ascertain the degree to which each of the 109 practices reflecting the seven philosophic orientations were accepted by persons in vocational agricultural education. The survey was sent to 800 persons representing agricultural instructors and students, school superintendents, high school principals, school board members, non-agricultural teachers, and teacher educators. They were asked to rate on a scale from 1 to 100 each item "relative to the philosophic constructs upon which they believe the vocational agriculture program is based and its overall acceptance and specific purposes". (There were three mailings of the instrument over a three month period with an 80% rate of total return.)

The Advisory Council sampled 80 of those persons responding to the survey to gather their opinions on the content, format, and breadth of the instrument, and their knowledge of the project and purpose of the instrument. The Council's opinionnaire consisted of 14 questions and persons were asked to rate each question on a five point scale from an opinion of strongly agreeing or strongly disagreeing with each item. We received 52 responses or a 65% return on our opinionnaire. Of those responding, 8 were non-agriculture teachers, 9 principals, 4 school board members, 8 state supervisors, 8 superintendents, 7 teacher educators, 3 agriculture teachers, and 3 agriculture students.

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* See project proposal, p. 9, no. 2.

Interpretation of Opinionnaire

The mean and standard deviation was computed for each of the items on our opinionnaire. Question #1 will be used as an illustration to aid the reader in interpreting the results. We will then only draw attention to those items which may be of particular importance to the project staff.

Persons responding to the first item were asked to rate the worthwhileness of the project as a whole. The scale ranged from a response of 5 for a strong agreement to 1 for a strong disagreement with that item. The mean or average response to item #1 was 3.7 and the standard deviation 0.7.

The range between which the responses to this item fell can be found by, first, adding the standard deviation to the mean to obtain the high of the range, and, then, subtracting the standard deviation from the mean, to obtain the low of the range. The range in scores is therefore between 4.4 and 3.0. By using the rating scale from strongly agree to strongly disagree, we would interpret the responses to this item as being all in agreement with this item, i.e.,they fell between strongly agree to undecided on the scale. (See page 8)

OPINIONNAIRE ON AGRICULTURE EDUCATION SURVEY

Ratings:
5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

STATEMENT	Mean	Standard Dev.
1. The I.S.U. project will make a worthwhile contribution to agriculture and agribusiness education in Iowa	3.7	0.7
2. The format of the scale used to rate the items in the survey was not difficult to use.	3.5	1.1
3. Many of the items should not have been included in the survey because they were outside the scope of agriculture education.	2.5	0.9
4. The purpose of the survey was adequately stated and explained	3.9	0.8
5. Personal data, such as age and educational level, was requested in the survey. This information should not have been requested. . . .	3.3	0.8
6. The directions for completing the survey were clearly stated and easy to follow	3.9	0.7
7. The I.S.U. survey should have been sent to a sample of farmers, agribusiness leaders, and others in agriculture-related occupations in Iowa.	3.8	1.1
8. The purpose of the Agriculture and Agribusiness Education project was adequately identified and described	3.7	0.7
9. Items in the survey should have been placed in 3 or 4 separate categories, identified with different aspects of agriculture education. . .	3.3	1.0
10. Many of the items in the survey were vaguely worded.	2.9	1.0
11. The survey also requested that you rate your knowledge of agriculture programs and your satisfaction with the function of the public school system. This information was an important part of the survey.	3.9	0.8
12. There were too many items on the survey	3.5	1.2
13. The survey was an essential element to the development of a more relevant curriculum in agriculture and agribusiness education in Iowa. . .	3.7	0.8
14. The items in the survey were poorly organized; it was difficult to progress from one item to the next	2.8	1.0

Conclusions and Suggestions

The following conclusions and suggestions relate to the survery instrument as interpreted from the responses to the Council's opinionnaire. Numbers in parentheses following each conclusion are keyed to the items on the opinionnaire.

- Requesting personal data, such as age and educational level, in the survey should have been described relative to its value to the project. (5, 11)

- There appears to be a general agreement that the survey should have been sent to a sample of farmers, agribusiness leaders, and other persons in ag-related occupations. (7) This concern has already been discussed with the project staff. At this stage in the project it would appear difficult to solicit the participation of these groups in the project activities.

- Statements 9, 10, 12, and 14 are interrelated and concern the survey's format, the wording of items, and the number of items on the survey. The feeling that there may have been too many items on the survey (12) and the resulting large amount of time needed for its completion, respondent's may not have given much attention to the survey's wording (10) and organization (9, 14). The undecided of these responses leads us to believe that questions concerning the format of the survey were superseded by concern for its content (3) and relevance to the project agriculture education. (1, 3, 8, 13).

- The Project 2000 survey was well received, its purpose clearly understood, and we feel it will serve as an essential element in the development of a more relevant curriculum for vocational agriculture education in Iowa.

(The results of our opinionnaire should be tempered by a time gap of approximately four months between the mailing dates of the project survey and the opinionnaire.)

Analysis and Interpretation of Survey Results by Project Staff

The project staff provided an oral review of the statistical and computer procedures for analyzing the survey results. Difficulty was encountered in establishing criteria for evaluating the computer software techniques used in the data analysis.

The raw score for each item was transformed into a normal deviate or Z score. A Z score of 500 therefore came to represent the mean and any item following below 500 was rejected. A correlation matrix of all items and a composite score of the seven principles, for each of the eight groups of persons surveyed, was performed on a computer. This statistical analysis was used to aid in the interpretation of the raw data. The degree of acceptance to the 109 subprinciples (or practices that reflect the philosophy) of the seven basic principles (or orientations) was then ascertained.

From tentative results of the data analysis, "one can conclude that each major principle is accepted by all groups (surveyed) as being an integral part of the agriculture and agribusiness program in Iowa". This conclusion contained in a "discussion only" paper was based on the findings that group scores for each item were above the established mean. The Council understands that these results are receiving further interpretation before there is a final acceptance of all the items on the survey.

Contingency

As stated in the project proposal, the instrument was to have been administered

> by project staff members and trained project representatives using a group interview technique. Group interviews (were to) be conducted on the campus of Iowa State University and/or selected sites throughout the state. This method of administering the instrument was decided upon in order to save project costs and provide accurate, reliable data upon which to base future project activities. *

Had the above procedure been followed the opposite effect may have likely resulted. The decision to administer the instrument by mail was both desirable and the only method practical when considering the numbers of persons surveyed and their geographic locations. There was undoubtably a savings in project cost and time. Accurate reliable data were obtained through the mailing technique.

Closing Comments and Recommendations

The Council has been impressed throughout Phase I of this project with the quality of work that has been accomplished and the extent of involvement in project activities from in-house and outside participants. The development of the philosophic statement, its affirmation by project consultants and advisory committee and its reaffirmation by practitioners of vocational agriculture education can be credited to a high degree of planning and efficiency of performance in meeting this objective. The input from vocational agriculture instruction during the development of the survey instrument has created an awareness of the project at the applied level. The survey instrument which reached 800 persons will not only broaden project awareness, but establishes a credibility and accountability among curriculum users that will be carried through to the projects conclusion.

A major purpose of this evaluation has been to point out agreements and differences in the project's activities to intended objectives. We have tried to objectively judge the worthwhileness or undesirability of changes or deviations from the objectives, as contained in the project proposal, and the effects they have had on Phase I.

In some instances, however, we are lacking evidence to support decisions which should have been cited in the project staff's monthly meetings with the advisory committee. What caused the democratic orientation to be included as a basic principle? What conditions existed within the project that prompted the involvement of instructors in the instrument construction process? What incident occurred to result in the survey instruments to be mailed versus completion on a group interview basis?

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* See project proposal, p. 10, no. 6.

These deviations from the project proposal were procedural and did not in any way alter the objective for Phase I - the development of the current philosophic statement for agriculture and agribusiness education in Iowa. The changes occurred through the cooperative efforts of the project staff and advisory committee were executed efficiently with a more than adequate performance from all participants.

Recommendations

The following recommendations may help retain a high level of interest and participation among project advisory committee members and consultants.

- *We recommend that alternative strategies or process (activity) modifications from the original project's objectives which are implemented be more fully documented. The reasons for deviations need to be explained, when the decision to change a procedure was made, who made the decision, and what reasons (financial, qualitative, efficacious) were presented to justify the alteration.*
- *We suggest that minutes of advisory committee meetings document the projects decision-making processes itself.*

Interim Evaluation Report: Phase II of Project 2000

Introduction

This, the Career Education Advisory Council's second evaluation report on Project 2000, examines Phase II of the project, "Project 2000 Forum for Agricultural Education in Iowa". The forum was held on the campus of Iowa State University, February 24 and 25, 1976, for the purpose of evaluating "current philosophic constructs and program purposes in light of current and projected social, economic, occupational, cultural, and educational needs and changes in society".

Phase II Components

There are three distinct parts to this phase of the project, First, twelve recognized experts in the fields of education, psychology, agriculture and agribusiness, sociology, economics, and philosophy made presentations on future trends in their specialty field. Secondly, a twelve person listening panel listened to and questioned the speakers about their presentations for the purpose of clarifying future developments and directions in the respective disciplines. The listening panel developed a list of implications the future trends will have on agriculture and agribusiness education. Third, based on the results of the forum and the listening team efforts, the project staff revised the basic principles statement for agriculture and agribusiness education in Iowa which had been developed in Phase I.

Evaluation Focus

The Council's evaluation of this phase of the project consisted of a review of the forum execution and presentations (by four Council members), the effectiveness of the orientation of forum speakers, the preparation of listening panelists for their task, and the degree to which the revised philosophic statement paralleled the thoughts and comments presented by the forum speakers and listening panel members. The final portion of this report considers any changes in the project which have resulted from our recommendations in Phase I and implications of Phase II activities on the development of the curriculum guidelines.

Speaker Selection

The speaker selection process was conducted by the project director. The director contacted the department heads at Iowa State University who represented the fields of study or academic areas to be addressed at the forum. Each department head was asked to suggest the name of one or two persons who were the recognized leaders in their fields. The project director, with the advice of his staff, consultants, and colleagues, selected and solicited these experts, in such fields as economics, sociology, etc., to make presentations at the forum. The project director and his staff are to be commended on the quality of speakers that were selected and their effectiveness in handling 'last minute' cancellations, logistical problems, and the like.

Speaker Valuations

The project evaluator for the Council conducted telephone interviews with four of the twelve forum speakers. The speakers interviewed were selected based on their accessability to be interviewed and represented the fields of education, agriculture, and economics. Two speakers were from Iowa and two were selected from other states. Each question asked of the speakers during the interviews is followed by a combined summary of their responses.

1. Did the project staff make it clear to you the topic they wanted you to address at the forum?

   Three of the speakers responded unequivocally in the affirmative. The one negative respondor began by saying that he was told to talk on anything he wanted to within his field. He felt the project staff did not "pin him down" on a particular subject; they should have been more definitive. He also expressed the opinion that not only wasn't he real clear on what was expected in this speech, but that maybe everybody wasn't real clear on what was wanted in terms of the final outcomes of the forum. "A lot of the discussion and presentations seemed to be quite a long way from direct applicability to agriculture education, including my own talk". In general, he felt he could have delivered something a little more useful.

2. Were you expecting to address a listening panel which would later question you about your presentation?

   All the speakers were aware of the function of the listening panel prior to their arrival, but one speaker was not certain as to the physical arrangement the panel would take before the podium.

3. Did you feel you knew the make-up of your audience? Was the atmosphere of the forum hospitable for your presentation?

   The listening panel or 'hearing' type format was a 'rare notion' as expressed by one speaker. The speakers were conscious during the talks that the listening panel was their primary audience. The speakers were not uncomfortable or intimidated by this format. One speaker wished he had been informed on the backgrounds and duties of the listening panel members and how vocational agriculture teachers in high schools operate. This might have affected the direction of his talk.

4. Do you think the listening panel was prepared to, and did, ask pertinent questions?

   The majority of the speakers were in agreement with this question. Most of the questions were relevant, but the depth of the questions were limited to the understanding each panel member, individually, had on the topic addressed. The amount of time permitted for questioning limited the number of questions that could be asked, but the afternoon discussion sessions compensated for this to some extent.

5. Were there any other topical areas to which the forum failed to address itself that you thought would have been of value for this project?

   Several speakers admitted that they hadn't given much thought to this question. The speakers were impressed with the broad spectrum of topics covered and the implications they had for teaching and future changes across all disciplines. The following topical suggestions were made by two speakers:

a) *Work satisfaction/dissatisfaction and the changing nature of work; changing work values; and jobs in agriculture from which a person can gain the greatest work satisfaction.*

b) *Decision-making mechanisms for determining what material is to be included in a program of study; what is of value to a study in a program and how do we use our valuable, scarce time most effectively.*

6. How would you assess the forum as a whole?

All the speakers were pleased to have been chosen to make presentations at the forum and learned a great deal from participating. Several speakers were concerned over the tremendous task the listening panel members had to perform in analyzing the vast, varied amount of information that was presented. One speaker felt that any type of agreement on the implications that were drawn from the presentation would be difficult to synthesize within the condensed, limited time frame.

7. What would you have done differently had you been conducting the forum?

The following was offered in independent response to the above question:

1. *I would have provided more time for speakers and listening panel members to share and exchange ideas on an informal basis.*
2. *I would have decreased the number of speakers.*
3. *A prospectus should have been prepared and sent to perspective speakers so they could have had better knowledge on what the forum was to accomplish. Some of the speeches could have been enhanced and been of more use had this been done.*

Conclusions and Suggestions

- All of the speakers interviewed, with one exception, were sufficiently briefed on the topics they were to address at the forum. The dissenting speaker felt that the use to which the final product of the forum, i.e. the trends and implications deduced from the speeches, was to be applied, should have been clarified.

  Contracts with speakers should have been more explicit by specifying the scope and focus of the topic they were to present.

- The function of the listening panel and its relationships with the speakers and the audience was clearly understood.

  - *One speaker wished that the professional backgrounds of the listening panelists had been made available prior to his presentation. This suggestion might have facilitated a greater response between these two groups and enhanced mutual understanding of forum accomplishments.*

- Speakers and listening panelists should have been provided additional time for dialogue on an informed basis.

  The number of speakers could have been decreased to accomodate this suggestion. Topics for which two or more speakers made presentation, e.g. economics, could have been limited to one presentation each.

- The overall effect of the forum on the speakers was enthusiastic and professionally satisfying. The potential value the application of the topics implications and trends would have for agriculture education and other disciplines was recognized as significant.

Listening Panelists Valuations

Telephone interviews, similar to those with the speakers, were conducted with four of the twelve listening panel members. Three Iowans and one out-of-state person were contacted. Two were agriculture instructors, one from a state department of education and another from a university department of agricultural education. In addition a separate written evaluation was mailed to us from a member of an out-of-state, university agricultural education department. (This written evaluation appears in Appendix A.) Our questions and the listening panelists' responses follow.

1. Did the project staff adequately prepare you for the tasks you would be performing as a listening panel member? Were you comfortable with your assignment?

   There was unanimous agreement that pre-forum preparation was adequate. One panelist thought the project was much more limited until he arrived at the forum. Another panelist was only vaguely aware of the final form in which his reactions to the speakers would appear. This same person was comfortable with his assignment until the work sessions, when it became necessary to synthesize the implications of the presentations into something that was of practical use for agriculture instructors.

2. What was your opinion about the atmosphere during the "hearing"? Would you have preferred that the speakers had been questioned in a different manner?

   The majority of the panelists interviewed felt the forum schedule of activities was rigorous. (Only one panelists felt it to be too rigorous.) Commenting on the "hearing" atmosphere of the forum, panelists felt there should have been more time for questioning on an informal basis, possibly through round-table or small group discussions in afternoons or evenings.

3. What is your opinion about the magnitude of your assignment? Was there a preponderance of topics that limited your effectiveness?

   Most of the responses deviated from the context of this question. One panelist felt their assignment was pretty large. More time should have been allocated after each speech to allow listening panelists to assimilate and record more of what each speaker presented.

4. Were the topics germane to the purpose of the project? Was there any subject area that was not addressed that should have been?

Two panelists felt that some of the topics were inappropriate to the purpose of the project. They thought the range of topics was sufficiently broad, but they were not certain as to how an agriculture teacher would apply the implications from certain presentations. The question was also asked whether or not an agriculture teacher should spend time teaching some of the ideas which were presented and, that, if some of the ideas were of questionable value, what instruction on those ideas would accomplish.

One panelist expressed the opinion that most or nearly all of the speakers were addressing high level problems as administrators in universities or from managerial levels in industry. These people, he felt, lacked an understanding of the problems incurred by agriculture teachers at the 'grass-roots' level where the implications of their speeches were to be applied. This panelist thought an agricultural instructor should have been included in the presentations.

Another panelist had expected the speakers to be talking on other areas of agriculture beyond an emphasis to production agriculture. His understanding was that the state programs in Iowa were broader than those on production agriculture. He would have broadened the focus of the forum.

The panelists suggested that some of the following topics should have been considered at the forum:

- The world energy crisis related to agricultural occupations and related industries.
- The organization of education in the future within which agriculture programs would have to operate.
- State educational policy and decision-making processes in the future.
- High school level programs in other areas besides production agriculture.
- What decisions would have to be made for agriculture education two decades from the present considering the implication this forum would produce?

5. Were there any operational details about the work sessions that should have been handled differently? Was there an attitude created which caused you to suppress some of your opinions?

The general feeling was that the work sessions were the least organized part of the forum. The charge to the listening panel - identifying trends and implications from the speakers - should have been reiterated at the work sessions and the form and direction of the assignment clarified earlier or just prior to the forum. When the organization of the first work session faltered, clarification and direction by the project staff should have been provided.

One panelist from Iowa thought that the out-of-state panelists were usually thinking in terms of their own state and that these persons would be taking back to his state information that would only benefit his locale. This panelist felt that maybe all the listenting panel members should have been Iowans.

All those interviewed felt there was free and open discussion during the work sessions.

6. Did the trends and implications reflect to a greater extent what the speakers said? Was there difficulty in arriving at implications from certain speeches?

As a whole the trends and implications reflected what the speakers had actually said. One panelist did mention that there would be individual biases in interpreting because of the diverse views held by the panelists. This panelist continued by saying that the work sessions "didn't use the trends as they might have been used because of the background of agriculture education". He also felt that no outstanding or innovative trends for the future of agriculture education were realized.

In answer to the second of the two questions, two persons we talked with thought that some of the speeches were too broad or off target and that implications drawn from those speeches would not affect vocational agriculture programs at all.

The fact that most of the speakers had prepared written texts of their speeches aided in drawing implications or clarifying what was presented vocally.

7. How would you assess the forum as a whole?

All of the panelists we spoke with thought the forum was very good and would be beneficial to the project as a whole. One panelist asked the question: "Was my input worth it to the project staff?"

The panelist asking the question viewed agriculture education, and education in general, as being so complex and structured "that no matter what we do it will remain basically the same". He felt that no matter what changes resulted from a project of this sort that the basic tenets of the agriculture program in the state will be retained. "Agriculture education will survive; we won't change it 180 degrees."

8. What would you have done differently had you been conducting the forum?

- More time should have been allocated for reaction between the speakers and listening panelists, either between presentations or through round-table discussions.

- Chairpersons with expertise in controlling the direction of discussions at round-table groups should have been used for this purpose.

- All but one speaker were college professors and thus removed from the very real problems of what is happening in the field. Therefore, an active, young vocational agriculture teacher should have spoken on what he says is happening within his own community and his program.

- *Project staff members should have been present during the work sessions to clarify the purposes of these sessions and give direction as to the form the implications were to take.*

- *More audience participation and wider distribution of project activities and forum results.*

Conclusions and Suggestions

- The listening panelists were stimulated by the ridged program schedule and volume of ideas that were discussed and assimilated.

- One panelist expressed disparagement concerning the scope of the forum. He opinionated that the forum was limited to production agriculture and should have encompassed a much broader concept of agriculture education. (The Advisory Council was not led to believe this from either the objecitve statement of the forum or the opinions of other participants.)

- A few listening panelists were concerned that there was not enough open or free discussion periods for interaction between speakers and themselves.

  Afternoon round-table discussions might have been better chaired to accomodate this concern.

- The composition of the speakers as a group and the listening panel were independent concerns of a few participants. One panelist was adamant in stressing that a vocational agriculture teacher should have made a presentation.

  An agriculture teacher as a speaker would have served as a down-to-earth bridge to agriculture instructors sitting on the listening panel. The speakers and panelists with administrative backgrounds may have been enlightened by the problems agriculture instructors deal with on a day-to-day basis in the classroom and with school administrators.

- The opening work sessions lacked a distinct charge and direction for the listening panel.

  It was felt by some attending those sessions that project staff members should have been present in the earlier stages of the work sessions to better define the final form in which the compilations of the sessions were to appear.

Council Valuations

A committee of three Council members attended an average of eight of the twelve presentations over the course of the two day forum. The Council's evaluator was present for the duration of the forum from the pre-forum orientation meeting through the final work session and forum summary luncheon.

The four persons representing the Council completed a 14 statement opinionnaire as its evaluation activity for the Project 2000 Forum. The statements contained on the opinionnaire and the Council's responses follows.

1. The forum failed to achieve its objective.

   2 - agree 2 - disagree

2. Meeting rooms comfortably accomodated the participants and the public.

All in agreement.

3. The range of topics was so broad that they created confusion. It was difficult to observe any interrelatedness between topics.

3 - agree   1 - undecided

4. The I.S.U. forum staff were courteous and helpful to the participants.

All in agreement.

5. There was insufficient time for interaction between the listening panel and speakers.

2 - agree   2 - disagree

6. The topics in the forum fit together to make a coherent program.

2 - agree   1 - undecided   1 - disagree

7. In general, the forum was not an enjoyable, worthwhile experience.

All disagreed.

8. The I.S.U. project will be greatly enhanced as a result of this forum.

2 - agree   1 - undecided   1 - disagree

9. I was unable to relate many of the topics to agriculture and agribusiness education.

1 - agree   2 - undecided   1 - disagree

10. Speakers had a thorough knowledge of their topics.

3 - agree   1 - disagree

11. The forum will have very little impact on the project as a whole.

2 - agree   2 - disagree

12. Interaction sessions were vibrant: pointed questions by listening panelists, cogent answers from speakers.

3 - agree   1 - disagree

13. There should have been fewer speakers.

1 - agree   1 - undecided   2 - disagree

14. A forum of this style and content would serve as a good basis for curriculum development in other fields of vocational education.

All in agreement.

Comments

There appears to be a conflict between the responses to items 1, 3, and 6. The Council's evaluator feels the negative wording of items 1 and 3 caused the discrepancies in these responses.

The mixed responses to items 8 and 11 may be attributed to a lack of time prior to the forum to discuss with Council members the interrelationship of project and forum objectives.

Forum Commendation

Council observations and the opinions of forum speakers and listening panelists form a strong majority agreement that the Project 2000 Forum fulfilled its objective: "A meeting of professionals to identify future trends in sociology, economics, and education and to discuss these trends in light of future program purposes and direction of agriculture and agribusiness education". The format for the forum, the accomodations, and related operational aspects were very commendable. With few exceptions the speakers who were chosen did excellent work on their presentations and the listening panelists experienced very little difficulty in drawing implications from their speeches. The vast majority of the participants we interviewed were greatly pleased with the forum and the opportunity extended to them to make contribution.

Application of Forum Results

The second major objective of the forum was to revise the basic principles statement in light of the trends and implications for the future of agriculture and agribusiness education identified at the forum. The project staff and consultants made this revision upon reviewing the findings of the listening panel. We wish to draw your attention to the changes made in the basic principles statement as developed in Phase I.

Very few changes have occurred in the text of the basic principles statement. A forward was added which is brief enough to be quoted in full.

The emphasis in developing these principles, and particularly the curriculum which will follow, has been intended to serve the needs of students, both vocational and non-vocational, at the ninth through the fourteenth grade levels, although the agricultural and agribusiness education program should not be limited to these grades. That is, the basic principles in agriculture and agribusiness education would apply much more broadly. [1]

The introduction was completely rewritten to broaden the scope of agriculture education beyond training for employment in this field. The emphasis of the revised introduction is on "the total agricultural situation in the U. S. and the world". The three functions for agriculture education programs are (1) the traditional function of training students for employment in agricultural occupations, (2) awareness of food and food production as crucial to world economics, and (3) increased emphasis at all levels of education towards the availability of avocational coursework in agriculture for all students and the community. Special attention was given in item two, above, to the importance of

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1. *Basic Principles for Agriculture and Agri-Business Education in Iowa.* Ames, Iowa: Iowa State University, 1976, p. 1.

regular (non-agricultural) classroom teachers in acquiring the compentencies to provide agriculture related instruction, e.g. ecology, economics, politics of world food production, etc.

Further, it is necessary to take note of the fact that agriculture has become so interrelated with the entire economy of the U. S. and the world, that vocational education in agriculture cannot be limited to specific skills and technical knowledge. Education must be broadened to include that workers in agriculture and agribusiness develop the appreciations and understandings of the social, economic, and political processes required to provide agricultural statesmanship. [2]

The eight orientations or headings in the basic principles statement remain totally intact with the exception of a single paragraph added at the end of the "Interrelationship of Agriculture" orientation.

It is likewise important that the leaders of agriculture and agribusiness understand the legitimate interests of other segments of the population, which are becoming increasingly organized into groups, each of which has its own conception of the public welfare. It is necessary that the leaders in agriculture and agribusiness education understand these forces and cooperate effectively with them. [3]

Conclusions

It appears from our examination of the revised basic principles statement that the substantive pragmatic character of this statement has not been altered to any significant degree by the results of the forum.

The two notable changes in the basic principles statement are: (1) the addition of a forward, which identifies the students who are intended to be served by these principles, and (2) an expanded introduction, which emphasizes the world food situation and its social, economic, and political significance as a crucial concern to all persons, here and abroad.

The project proposal states that a "new philosophy definition and set of purposes" will be drafted by the project staff members "based on the summaries developed by the current philosophical statement and goals". The reactions to the new philosophy submitted by the consultants and advisory committee "will be evaluated by project staff members and changes made deemed appropriate in writing a final draft of the philosophy, definition and goals". (See federal catalog number 13-498, p. 14, items 9-11.)

It is our observations that the writing of a new philosophic statement was not deemed necessary as a result of Phase II activities. (One project committee member commented that he felt the philosophy should not change as a result of the forum.) Rather, the current basic principles statement was simply revised by the project staff members according to what we have cited previously.

As identified in the "Project 2000 Forum: Summary of Proceedings", the implications of future developments and directions in agriculture education will serve the primary purposes of (1) program restructuring, (2) curriculum development, and (3) approaches to teaching.

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2. Ibid, p. 2
3. Ibid, p. 7

Recommendations

It is the Council's understanding that the statements contained in the Phase I "Survey on Education in Agriculture" and the implications arrived at through the "Project 2000 Forum" form the basic tenets for the development of curriculum in Phase III.

1. *The statements used for the Phase I survey were developed directly from the eight orientations of the basic principles statement. We recommend that a reverse process be employed by which the implications of the forum are categorized under the eight orientations in the basic principles statement.*

2. *The statements contained in the Phase I survey and the implications developed from the Phase II forum should be compared to eliminate duplications or discrepancies between the results of these two phases.*

   As an example, we would compare statement number 6 on the survey with implication number 1, p. 74, in the "Summary of Proceedings" for the forum.

   Survey Item Emphasize community input in the development of . . . programs. (6)

   Forum Implication Programs must be based upon local community needs. (1)

3. *We recommend that a master analysis statement of Phase I survey items and Phase II forum implications be developed. Survey items and forum implications would be categorized under the basic principles statement orientation to which they apply.*

The purpose of these recommendations is to assure that the results of all project activities are (1) related to the basic principles statement and (2) cross-validated to assure a continuity of transition from the first two phases to the third. It is important that the basic principles statement, the items on the survey instrument, and the implications from the forum can be identified with a Phase III, curriculum level objective.

Addendum

Phase I Evaluation

Narrative Analysis of Basic Principles Statement

As illustrated, the project's basic principles statement contains the fundamental elements necessary for it to be considered a philosophy. This portion of the evaluation is a descriptive analysis of the explanatory passages accompanying each of the eight orientations. The hypotheses which follow are written as evaluative questions to be answered in this section.

What justification exists for the placement of the eight orientations in the categories under which they appear in the philosophic model?

Is the basic principles statement based upon the philosophy of pragmatism?

The procedure established for investigating these questions is a two step process applied to each of the four categories in the philosophic model. First, the branch of philosophical model under discussion, e.g., metaphysics, epistemology, is defined according to the philosophy of pragmatism. Secondly, as examples, the 'Change through Flexibility and Continuity' orientation is examined within the metaphysical context of pragmatism, the 'Experience Centered' orientation within the epistemological definition of pragmatism, etc.

The metaphysics of pragmatism is characterized by a world which is indeterminate and constantly changing. Man does not function in an all-inclusive reality or a closed universe, nor is he separate from nature or the "ongoing human stream" of society. 1 The world consists of a multiplicity of experiences with no unchanging substance or relations: "There is nothing which is static or permanent; there is nothing outside the flowing of life's changes. Everything is in flux and movement". 2

Therefore, man must be adaptable to the multiplicities of experience which arise in a precarious and incomplete world if he is to be effective. The 'Change through Flexibility and Continuity' orientation mirrors the metaphysics of pragmatism:

> Agriculture and Agribusiness Education is characterized by flexibility and adaptability rather than rigidity in its attempt . . . to cope intelligently with constant and significant change. . . . We are now living in a world in which change is so rapid and so significant that education can never be regarded as conclusive or final. 3

The world of the pragmatist is continuous. Man's thoughts, actions, and the events surrounding him are an integral part of nature and society. "There is such close correspondence between man's reason and events of the world as to constitute continuity". 4 The 'Change through Flexibility and Continuity' orientation is further reflected in this philosophy:

> . . . even in the most revolutionary situation, a revision is always characterized to a significant degree by continuity as well as by significant change. 5 (Emphasis added)

With the intensity and degree of changes occurring in the world, man must develop the capability of interacting with and responding to the rest of mankind.

Man's association with nature and other men is so crucial, that he "must face the world, he must engage actively in the events of the world, . . . if anything determinate is to be brought out of worlds' indeterminacy. Nothing of value will come to pass if man escapes from the worlds' events and allows them to take their own course". 6 The 'Interrelationships of Agriculture' orientation emphasizes the importance of human and institutional interrelatedness of the pragmatic world:

> . . . we are living in an increasingly interdependent and interrelated world in which agriculture . . . is closely interwoven with the entire economic and social structure of the community, the state, the nation, and the world. 7

Pragmatists believe that epistemology or the nature of knowledge is based on experience. Butler states that pragmatism is not rationalistic, deducing "specific items of knowledge" from universal truths or "predisposed principles of reason". 8

"Particular things are so markedly individual that no universal can do justice to them". 9 Neither, Butler argues, is pragmatic epistemology empirical, a "compilation of facts" gathered through "the senses as gateways for knowledge". 10

"Pragmatism is empirical in that its frame of reference is always sense-perceptual experience . . . it is only as we are engaged in active experience with things that qualities come to light in such a way that we 'know' them". 11 (Emphasis added) The 'Experience Centered' orientation is founded on this theory of knowledge:

> Agriculture and Agribusiness Education has a major premise that experience . . . is the context in which learning occurs. Experience provides the medium through which the student comprehends his world. 12

Although pragmatism does not adhere to empericism in the traditional sense, it does rely on scientific investigation or 'experimental action' as a method of observing data, "a way of doing things which has direction and keeps thought moving with experience". 13

The pragmatic kind of knowledge utilizes the scientific method to observe the flow of events in experience but not to accumulate the facts of experience. The project's orientation towards 'Agriculture Resource Management' follows this line of thought:

> Theories, ideas, and concepts . . . are derived largely from individual experiences and experimental investigation including both the tested experience of those engaged in agriculture and rigorous process of the pertinent sciences. 14

The orientation to 'Decision Making through Problem Solving', which is discussed under the logic branch of the model, further clarifies the pragmatists' rejection of fact accumulation or the storehousing of knowledge for knowledges' sake. Pragmatism yields knowledge "to the limited extent of a sense of the particular way of acting which is acceptable in a particular unit of experience". 15

> . . . bodies of knowledge are of enormous importance in the problem-solving, but they are used as resources in the solutions of problems rather than the direct study of the particular body of knowledge itself. 16

The third branch of our philosophical model is logic. Logic is the science of thought and, for pragmatists like John Dewey, must be extended "into the sense-perceptual level of experience". 17 The logic of pragmatism follows the pattern of experimental method. There are six components to this pattern: (1) a problemmatic situation arising from experience; (2) recognition or determination of the problem; (3) observation of factors related to the problem; (4) formulation of a hypothesis or patterns for reasoning; (5) application of the facts and meanings operational in the 'problem-solution movement of experience'; and (6) reflection 'back into common-sense experience'. 18 In addition, this pattern of thought is regarded as autonomous, operational within the biological existence of an individual, tied closely with his culture, and is not isolated from society. 19 This pattern of logic is contained in the 'Decision Making through Problem Solving' orientation of the basic principles statement:

> Problem-solving . . . implies active involvement in discovering solutions to problems directly or indirectly relevant to the needs of the learner and the realities of society. . . . Usually such problem-solving involves several phases such as: defining the problem, collecting information and knowledge, formulating hypotheses, testing hypotheses, judging the consequences, making a valid decision, and implementation of that decision. In agriculture and agribusiness education problem-solving is the optimum approach to learning and method of teaching, although not the sole approach or method. 20 (Emphasis added)

What has been emphasized above can be interpreted as a reflection on the ever-changing, complex society we live in, in which knowledge comes to us through many different medias and through a variety of experiences. The constantly changing world of the metaphysics of pragmatism should provide alternatives to the problem-solving approach to learning: The experimental method for gathering knowledge may not be applicable to every experience.

Axiology - - the study of values - - is concerned with the worth of things and of relationships. Values serve as a guide for day-to-day living, providing a frame of reference from which an individual conducts himself, appreciates his culture, and functions in society. As such, axiology explores ethical, aesthetic, religious, and social values.

Values are of paramount importance to the pragmatist. "Values have their existence by virtue of their relation with individual-social activities". 21 They arise from the conditions of experience and interaction with "the individual-social flow of events". 22 As man participates in "value realization" through his awareness of this phenomena of interactivity, "he comes to recognize that as an individual he is both responsible for and accountable for what he does". 23

Values are determined for each situation in which a person is engaged. In effect, a new experience will yield a different kind of value which is desirable for that situation. What criteria does a person use when establishing a value? Are they based on self-interest or personal desire for a particular object? There are two principles by which values are adopted by pragmatists: (1) they must be satisfactory to the situation rather than being satisfactory to the person or persons involved in the situation, and (2) they must permit the flow of experience to continue into future situations. 24

It appears, therefore, that individual and societal desires or needs must be given critical attention during the process of selecting values. For this reason the project evaluator has classified the 'Individual and Social Needs' orientation under the axiology branch of the philosophic model. This orientation also exhibits a distinct pragmatic character:

> Agriculture and Agribusiness Education is oriented towards, (a) the biological and social needs of persons, and (b) the needs of the society for which the individual is being educated . . . Needs [or values] both individual and societal, should be determined by a cooperative process 25

The 'Pragmatic Orientation and Values Development' principle addresses pragmatic values exclusively. It would therefore fall under the axiology branch of our model.

> Agriculture and agribusiness education conforms to and concurs with the theory of knowing and valuing which refers thinking and action to all consequences to oneself and others as the final test of the true and the good. . . . A wish, desire, or want becomes a value when it has been examined in terms of consequences. All such valuation takes place in a given context because in one situation an action may lead to one set of consequences, while in another situation, a different set of consequences . . .. We judge our values in terms of, (a) consistency with the rest of our value system, and (b) the consequences of the action to which the value will lead. 26

At the conclusion of the narrative analysis of the philosophic statement, it is recommended that the 'Democratic Participation' orientation be retained as a basic principle for agriculture education. This is justified in part by examining this orientation as it relates to pragmatism. It also becomes important to recognize 'Democracy' as being axiological in nature with reference to the philosophic model.

Butler feels that in a democracy, values are "probably more in balance" than in any other kind of social organization. 27 The political structure of democracy offers the freedom of communication and thought and the degree of interaction between individuals and communities necessary for healthy value development under pragmatism. "It is within this kind of living space [democracy] that individuals can best come to have a sense of community, and both to feel and enjoy their places as participating members in the individual-social life process". 28 The 'Democratic Participation' orientation in the basic principles statement states that democracy is an educational discipline which . . .

> recognizes that values and propositions are ultimately tested by their consequences in the lives of human beings. The democratic approach . . . is necessary if agricultural education is to fulfill its responsibilities both to the individual and society. 29

It could be concluded from the above statement that the philosophy of pragmatism would have the greatest value within a democracy.

References

1 J. Donald Butler, *Four Philosophies and Their Practice in Education and Religion.* New York: Harper & Row Publishers, 1968. Pp. 377-404.

2 Ibid., p. 385.

3 Project 2000, "Basic Principles for Agriculture and Agri-Business Education in Iowa" (Ames, Iowa: Iowa State University, May, 1976), p. 2. (Mimeographed.)

4 Butler, op.cit., p. 387.

5 Project 2000, op.cit., p. 3.

6 Butler, op.cit., p. 388.

7 Project 2000, op.cit., p. 4.

8 Butler, op.cit., p. 378-379.

9 Loc. cit.

10 Loc. cit.

11 Ibid., p. 379-380.

12 Project 2000, op.cit., p. 3.

13 Butler, op.cit., p. 381.

14 Project 2000, op.cit., p. 4.

15 Butler, op.cit., p. 382.

16 Project 2000, op.cit., p. 3.

17 Butler, op.cit., p. 388.

18 Ibid., p. 392-393.

19 Ibid., p. 394-395.

20 Project 2000, op.cit., p. 3.

21 Butler, op.cit., p. 394.

22 Ibid., p. 395.

23 Loc. cit.

24 Ibid., p. 397.

25 Project 2000, op. cit., p. 4.

26 Ibid., p. 2.

27 Butler, op.cit., p. 404.

28 Loc.cit.

29 Project 2000, op.cit., p. 1-2.

Addendum

Phase II Evaluation

Revision of Basic Principles Statement

This addendum is a supplementary commentary on superceding revisions of the Project's statement "Basic Principles for Agriculture and Agribusiness Education in Iowa". The Council's first commentary of the second revision of this statement can be found in the Phase II evaluation on pages nine and ten, "Application of Forum Results". The basic principles statement in its final form represents the fifth revision of this statement. This commentary is subsequent to the second revision, i.e., is not a comparison between the original basic principles statement and the final statement (fifth revision).

The early revisions were primarily conducted 'in-house' by the project's staff with assistance and feedback from the project's advisory committee and consultant Dr. William Stanley. The potential impact and importance of the Project 2000 Forum results on the basic principles statement appears to have prompted the project's staff to expose this statement to and solicit recommendations from a wider audience in their revisionary efforts. Latter revisions have not only included the ongoing comments of the advisory committee and Dr. Stanley, but have received circulation among colleagues of varied disciplines at Iowa State University and staff and consultants from Iowa's Department of Public Instruction. It is this collective revision process which characterizes the final statement under review in this addendum.

The first change of cursory note has been the retitling of the eight orientations. The following table contains, to the left, the original categorizations and, to the right, the corresponding revised headings.

Basic Principles

Original	Revised
Democratic Orientation	Democratic Participation
Pragmatic Orientation	Pragmatic Orientation and Values Development
Orientation Toward Flexibility and Continuity	Change through Flexibility and Continuity
Problem Solving Orientation	Decision Making through Problem-Solving
Experience Orientation	Experience Centered
Individual and Social Orientation	Individual and Social Needs
Agriculture Resource Management Orientation	Agriculture Resource Management
Interrelationships of Agriculture Orientation	Interrelationships of Agriculture

These alterations represent the implementation of recommendations two and three contained in the Council's Phase I interim evaluation report (pp. 3-4). Coinciding to the second recommendation, the 'Pragmatic Orientation' principle has been identified as a statement which addresses the question of values; and to the third, the 'Democratic Orientation' has been retained as an integral part of the basic principles statement. This retitling process has not changed the positions these principles hold with respect to the philosophic model in the Phase I evaluation (p. 3).

The foreword in the final statement has been made more succinct while retaining the same intent of the foreword in the second revision. The intent of both is to present a picture of agriculture and agribusiness education which is both vocational and avocational, serving the needs of all individuals, irregardless of educational level, who desire such education.

> The emphasis in developing these principles, and particularily the curriculum which will follow, is intended to serve the needs of individuals desiring education in agriculture and agribusiness through public education in Iowa. [1]

The statement which follows the foreword has been retitled in the final version of the basic principles statement to read: 'Functions of Agriculture and Agribusiness Education'. (In the second revision this was titled, 'Introduction'.) This too has been shortened, from three paragraphs to one, and is written nearly verbatim from the second revision. The functions statement briefly describes the three purposes of an agriculture/agribusiness program: (1) employment in the field, (2) the significance of agriculture in the nation and to the world, and (3) the need for avocational agricultural education programs. The crucial role of agriculture in the world today and the education of lay publics in this field are the major tenets of this statement.

The final copy does contain a short introduction following this functions statement. This appears just before the eight principles and recognizes the contributions made by non-project personnel in developing and refining the basic principles. The third paragraph of the original introduction, which lists the eight principles, has been retained as the last paragraph in the final copy.

With regards to the eight principles themselves, only two have been edited to any significant degree: the 'Democratic Participation' and the 'Experience Centered' principles. The remaining six principles have generally received only minor word or phraseology changes or sentences have been reordered for greater clarity. Therefore, only the two principles mentioned will be treated in this addendum.

The 'Democratic Participation' principle has been reduced to approximately one half of its original length. Discussions of accountability, implementation of a democratic approach to education, problem solving, and pragmatism have been deleted as they are treated in other, and in the case of the latter two, separate principles. What has been retained in this principle is taken word for word from the original democratic principle. Separated into three paragraphs is (1) the commitment of agricultural education to the democratic ideology; (2) that choice is dependent upon individual maturity and is not granted without a corresponding sense of responsibility; and (3) the components of pragmatism and agricultural education best serve the individual and society within a democracy. A position taken for or against democracy is a statement of values and, as this principle remains fundamentally unchanged, retains its pragmatic character and position in the Phase I philosophic model.

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[1] Project 2000, "Basic Principles for Agriculture and Agribusiness Education in Iowa" (Ames, Iowa: Iowa State University, July, 1976), p. 1. (Mimeographed.)

The 'Experience Centered' principle has been expanded to further emphasize direct and vicarious experiences in the development of skills and knowledge.

> In agriculture and agribusiness education the use of direct experience is utilized to develop knowledge and skills and enhance understanding and retention of knowledge and skills. ...formal and informal instructional situations (classroom, laboratory, supervised occupational experience, etc.) are the means of providing vicarious and direct experiences. These experiences are based on present situations and conditions and past experiences of the learner.[2]

Conclusion The final revision of the basic principles statement is more clearly introduced, nearly void of repetition, and better reflects outside contributions and the implications of the forum than previous revisions. The overall character of the statement is still pragmatic.

Our first recommendation from the Phase I interim evaluation report suggested the need to identify this statement as being pragmatic. It is possible that such a label might alienate potential instructors, who are otherwise inclined towards a more eclectic approach to instruction, from utilizing a curriculum generated from a philosophy so labeled.

We belabor this point to raise the following questions:

> Does each principle stand independent of the others?
>
> Does an agricultural educator who rejects, say, four of the principles, preclude his acceptance of the remaining principles, thereby rejecting all eight?
>
> Is a statement or conclusion which makes these principles mutually interdependent necessary or desirable?

As these questions have been raised after the fact, i.e., the final published statement, they will have to be answered by the project's staff, when, and if, they are asked by agricultural educators.

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[2] Ibid., p. 6.

APPENDIX A

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Vocational and Technical Education
College of Education
116 Classroom Office Building
St. Paul, Minnesota 55108

March 1, 1976

Mr. William Klug
Career Education Advisory Council
1209 East Court
Room 304
Des Moines, Iowa 50319

Dear Mr. Klug:

This is in response to your query to me about the evaluation of the Forum held in Ames last week. I've now had time to put the whole affair in some perspective and this letter gives my general summary.

The intent of the Forum, namely, "to identify future trends in sociology, economics and education and to discuss these trends in the light of future program purposes and direction in agricultural and agribusiness education," is an intent that is rather easily achieved. The task of taking the next steps is not so easy.

During the course of the Forum, one soon became aware of two rather transparent realities. First, the assembly of well-known and highly visible individuals from different disciplines does not guarantee that their presentations or response to questions will be interdisciplinary, even when they are addressing an interdisciplinary context such as agricultural and agribusiness education. Such individuals always managed to stay close to their disciplines or to their prior commitments, leaving all disciplined "mixes" of their ideas to their listeners. Such is also the case with college students; they get exposed to many disciplines, but the task is synthesizing and utilizing them in a professional field is beyond or below the imagination of most representatives of the disciplines.

Second, the representatives of agricultural sciences at the Forum appear to have a better feel for the program purposes of agricultural and agribusiness education, than did the representatives of the social and behavioral sciences. Somehow they appeared closer to the reality of real problems in the field. This is unusual. One would expect quite the opposite.

Neither of the observations made above should detract from the intent of the Forum. This is not unexpected, and thus there was a good reason for having the listening panels to try to establish some kind of linkage between the highest level of the state of the art in the disciplines and the implications for professional practice in the field. If there were disjunctures or mismatches, it is important to regard them as normative and "par" for the course.

Given the observations made above, it must be concluded that the Forum was, in fact, well-planned and extremely well-executed. Some of the presenters side-stepped their assignments and some failed to do very much homework, but this, too, is to be expected. It does not detract from the diligence which was exercised in planning the event. It merely places a heavier burden on scouring the discussions for relevant outcomes.

The conference planners should be commended for holding this Forum in a completely "open" setting which allow everyone and anyone to view the problems and the opportunities in attempting to fashion some changes in program orientation for the future. So much of education is retrospective in view, that this kind of an effort is both unusual and unique.

The physical facilities were, of course, ideal, as were the arrangements for every detail involved in the execution of the Forum.

I would like to end with the observation that it is always easy to attempt an evaluation of such an event by looking at its trivial elements -- the behavior of the presenters, the ability of chairpersons to act their roles, and the extent to which the Forum was enjoyable. I believe that all of these should be set aside in favor of looking at some of the more overarching purposes which came through. With such in mind it should be said, I think, that the Forum did an excellent job of doing what it attempted to do, even when it raised, rather than lowered our apprehensions about the future.

Sincerely,

Gordon I Swanson

Gordon I. Swanson
Professor

/jkw

An Evaluation of Iowa State University's

"Strategies for Revision of Curriculum and Program Restructuring of Vocational Agriculture in Iowa"

Phases III and IV
Final Project Report

Prepared by

State of Iowa
Vocational Education Advisory Council

Des Moines, Iowa 50319

Principal Investigator

William E. Klug

under contract with

Iowa State University
Ames, Iowa 50010

June, 1977

Preface

Iowa State University received a grant from the U.S. Office of Education to complete a project entitled "Strategies for Revision of Curriculum and Program Restructuring of Vocational Agriculture in Iowa" (Federal Catalog Number 13.498). The Department of Agriculture Education is conducting the project. The major focus of the project is the development of a new curriculum for agriculture and agribusiness education for implementation in Iowa's high school and area community college vocational agriculture programs.

The State Advisory Council is party to a contract with Iowa State University to perform an independent third party evaluation of the project. The purposes and methods of the evaluation are specified in the contract. The general scope of the Council's evaluation, as contained in the project proposal, includes the:

(1) determination of the extent to which objectives of the project have been met;

(2) identification of factors related to successful achievement of project activities;

(3) identification of factors that are hindering the successful implementation of project activities; and

(4) suggestions of new project strategies that will enhance the success of the project.

This project has been subtitled, "Project 2000", and is divided into four phases. A set of objectives has been written for each of the four phases within the overall rationale of the project. The Advisory Council will submitt interim evaluative reports upon completion of each of the four phases. These reports will examine the degree of effectiveness to which the objectives of each phase are accomplished.

A committee of three Council members have been appointed, along with the Council staff, to observe project conferences, meetings, and like activities. The Council's staff will monitor all significant project activities, establish the design for the evaluation, maintain a high level of reciprocity with Project 2000 staff, keep all Council members appraised of evaluation activities, and prepare and submit interim evaluation reports to the Advisory Council for final approval. The criteria for judging the quality of this project will be largely determined by the combined opinions from the observations of project activities by those participating in the activities, including Advisory Council personnel.

Since the interim reports are designed for use primarily by the staff of Project 2000 and officials in the U.S. Office of Education, it is suggested that the reader of the evaluation reports make reference to the project proposal. This will assist the reader in developing a complete comprehension of the implications of the evaluation reports.

The following four pages are a summary of the entire project as developed by Iowa's State Advisory Council on Career Education. Appendant to this summary are the interim evaluation reports which coincide with Phases III and IV of Project 2000.

Overall Review
and
Executive Summary
of

"Strategies for Revision of Curriculum and Program Restructuring of Vocational Agriculture in Iowa"

Phase I: Basic Principles Statement

The eight basic principles are the keystone in this project. The first draft of the principles was developed by the project staff. This paper was reviewed by twelve teacher educators and state supervisors of vocational agriculture from the central states region. A second draft, which incorporated the suggestions of these people, was then reviewed by the project advisory committee and Dr. William Stanley, project consultant.

> *The evaluation of new, revised statement found that the eight principles composed a complete philosophy. The evaluation recommended that the statement be identified as being pragmatic.*

The second stage in Phase I was to develop a list of current practices which reflected the basic principles. An Instructor Input Meeting for Instrument Construction was conducted for the purpose of establishing "a means by which to confirm the philosophic base of agricultural programs at the secondary and postsecondary level". The survey instrument developed from this workshop contained 109 practices and was sent to 800 persons. The project staff concluded from the results of the survey "that each major principle was accepted by all groups (surveyed) as being an integral part of the agriculture and agribusiness program in Iowa".

> *The evaluator sampled 80 persons responding to the project survey. A portion of respondents to this sample survey felt the original survey should have included farmers, agribusiness leaders, and other persons in ag-related, non-educational occupations. Most respondents to the evaluation felt that the survey was an essential element in the development of a more relevant curriculum for vocational agriculture education in the state.*

Phase II: Forum

A two-day forum was held on the campus of Iowa State University in February, 1976, for the purpose of evaluating "current philosophic constructs and programs in light of current and projected social, economic, occupational, cultural, and educational needs and changes in society". Twelve recognized experts from across the country in these fields made presentations. A twelve person listening panel developed a list of implications from the speakers presentations which would have an effect on agricultural education. The major implications were then used to revise the basic principles statement.

The evaluators interviewed four of the speakers. Those contacted were highly satisfied with the forum proceedings. Limiting the number of speakers would have provided more time for dialogue on an informal basis with the listening panelists.

Four members of the listening panel were interviewed. These persons also felt there was not enough open or free discussion periods between themselves and the speakers. The work sessions at which implications from the speeches were derived lacked a distinct charge and direction for the panel members.

The results of the forum did not significantly alter the pragmatic character of the basic principles statement. The most notable change was the addition of three broad functions to which agricultural education should serve. These functions are as they currently appear in the curriculum guidelines.

The evaluator's recommendations following the conclusion of the second phase were not implemented. This may have been due to a lack of project staff time.

Phase III: Learners Needs Statement

The "Classification of Learners Needs by Age Groups" was developed by the project staff through a research of child development literature. A group of ten local teachers and administrators at the elementary and secondary levels and the project advisory committee reviewed the learners needs.

In the opinion of the evaluators and Dr. Ralph Tyler (project consultant and author of the curriculum principles the project is following), the learners needs are identified through research only, and not by a survey of students themselves or their teachers. This approach does not fully satisfy the purpose of this activity in the curriculum development process. The statement is primarily a guide to socially acceptable behavior and fails to identify needed changes in behavior patterns.

The impact of the activities omitted from the original project design will be assessed during the Phase V evaluation. At that time it will be possible to determine whether the expert opinion of the teachers and administrators and the advisory committee was an adequate substitute for a survey of students and teachers. A survey of a sample of students and teachers would likely have been too large an undertaking for the staff committed to the project.

The Curriculum Guidelines

The original direction taken by the project staff in the construction of the curriculum guidelines was to derive curriculum level objectives based on current subject matter content in agriculture education. This approach was abandoned after a meeting with the project consultants, Tyler and Stanley. This meeting in December, 1976, redirected the project staff to write their objectives based on the three functions and eight basic principles. For each of the twenty-five curriculum objectives developed through this new approach, a list of instructional objectives, suggested subject matter and learning activities was then written. Resource materials will be identified in the fifth phase.

> *The evaluative overview of this process illustrated that the basic principles were the primary source of curriculum level objectives. The learners needs statement and the forum implications provided minimal input at this level. A study of contemporary life outside the school and a psychology of learning were not used to develop objectives. (The latter may be inherent in the philosophy of pragmatism, but this was not stated, as such, by the project staff.)*
>
> *It was shown that all of the curriculum objectives were derived from the functions and basic principles. However, the purpose of each principle can not necessarily be achieved by one function in itself.*
>
> *The final test of the principles, functions, objectives, and the degree of articulation from one grade level to the next is dependent upon the quality and depth of learning experiences.*
>
> *The remaining levels in the curriculum schema were not evaluated. These are subject to changes resulting from the field testing phase.*

Phase IV: Administrative Guidelines

The major source of suggestions for developing the administrative guidelines was a workshop consisting of twenty-five persons representing many levels and fields in education. The participants contributions were made under nine broad discussion areas related to the structuring of the agricultural education program.

> *At the time this evaluation was submitted, the administrative guidelines had not been submitted. The evaluators did not feel it was possible to evaluate only the results of the workshop. The reactions from participants in the workshop who were interviewed were given to the project staff in February and should be of value to them during the final writing of the guidelines.*

Conclusion

The major goals of this project under its contract with the U.S. Office of Education have been achieved and the results are unique to the field of agriculture and agribusiness education. Significant to the success of this project has been a philosophic base and a K-12 approach to agriculture and agribusiness education. Due to the large number of persons participating in the project activities a high degree of validity is evident in the presently completed product and above average success in the field is predicted.

During the course of the project the staff demonstrated a cooperative attitude by providing materials as requested and notified the evaluators of all meetings. The evaluation contractor communicated in writing and orally with the project staff between interim and final reports when it appeared that such communications would enhance the effectiveness of the project.

Definition of Terms

Advisory Council - thirteen members of the Career Education Advisory Council serving as third party evaluators of Project 2000.

Basic Principles Statement - synonomous with philosophy of vocational agriculture education in Iowa; eight principles which typify agriculture and agribusiness education.

Career Education - the totality of experience through which one learns about and prepares to engage in work as part of her or his way of living.

Evaluator - administrative and research assistant for the Career Education Advisory Council responsible for preparing evaluation reports and monitoring Project 2000 activities.

Phase - one of four steps or stages in Project 2000 leading to the development of a curriculum for agriculture education in Iowa.

Project Advisory Committee - a nine member panel serving as advisors to Project 2000.

Project Consultants - three professionals responsible for advisement on the philosophic and curriculum development phases of the project.

Project Staff - project director and graduate students employed by Iowa State University.

Vocational Agriculture Programs - instruction and curriculum in agriculture subjects at local high schools and area community colleges.

Final Evaluation Report: Phase III and IV of Project 2000

Introduction

Project 2000 as originally funded by the U.S. Office of Education is a four phase study to develop an articulated, kindergarden through fourteen grade curriculum for agriculture and agribusiness education in Iowa's schools. A fifth phase to the project will be funded through the Iowa Department of Public Instruction.

The first two phases of the project were completed in July of 1976. A basic functions and principles statement for agriculture and agribusiness education in Iowa was written and published at the conclusion of those phases. Project activities and evaluations by this Council of Phases One and Two are contained in respective, interim evaluation reports.

This report is the evaluations of Phases Three and Four of Project 2000. They are covered together in a single report because they are being completed nearly simultaneously. Project and evaluative activities of these two phases cover an eleven month period ending June 30, 1977.

Phase Five of the project involves the field testing of the new curriculum. This phase is scheduled to span an eighteen month period during which time the curriculum and administrative guidelines will be implemented and tested in selected school systems within Iowa. Plans include this Council serving as the third party evaluator for the fifth phase.

This report on the completion of Phase Three of Project 2000 (the development of the new curriculum guidelines) will include a review of all project activities through the third phase. This is used because of the structure of the project as a whole: a telescoping or pyramidal progression from one phase activity to the next, culminating in the curriculum guidelines. This review therefore is synoptic, positing all previous phase activities within the curriculum development continuum as a whole.

Phase Four, the development of the program structure or administrative guidelines, will be treated as separate from the purpose of this overview. The evaluator feels that curriculum development and structures for curriculum implementation are distinct units within the project. The administrative guidelines (Phase Four) and field testing of the curriculum (Phase Five), together, require an additional overview within the project structure as a whole, when those phases have been completed.

The Overview

Project 2000 has adopted as a basis for developing its curriculum an approach outlined by Dr. Ralph W. Tyler* in his book Basic Principles of Curriculum and Instruction.[1] Tyler states, however, that his book "is not a manual for curriculum construction" but "one way of viewing an instructional

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* Dr. Tyler serves along with Dr. William O. Stanley as a consultant to Project 2000

Studies of Learners Themselves

Learner's Needs Statement. The project's first activity under Phase Three was the development of a "Classification of Learner's Needs by Age Groups". This classification is intended to identify and "assess learner's needs in order to determine behavioral changes that should be emphasized in [a curriculum] objective".

The development of the classification included an investigation of child development literature by the project staff and a review, by mail, of the first draft of the classification by a committee of Iowa State University personnel in the fields of education and child development, and teachers from the Ames, Iowa, school system. The project advisory committee also presented suggestions and criticisms of the classification at a regularly scheduled meeting with the project staff.

The classification is an age-grade chronology of the sociological, psychological, and educational needs of learners. The four divisions of the classification are:

1. Middle childhood: ages 5-9, grades K-3.
2. Late childhood: ages 9-12, grades 3-6.
3. Early adolescence: ages 12-18, grades 6-12.
4. Late adolescence: ages 18-21, grades 11-15.

Under each division the sociological, psychological, and educational needs of the learners are listed. These needs become increasingly complex from one age or grade group to the next.

The purpose of studying learners themselves, as stated by Tyler, is to "seek to identify needed changes in behavior patters of the students . . ." (Emphasis added.) The need to change behavior suggests a difference between the present status of a learner and some conception of a desirable norm (socially acceptable behavior). This gap between "what is and what should be" is considered a need.

> A study of such needs in a given group of children would involve identifying those needs that are not being properly satisfied and an investigation of the role the school can play in helping children to meet these needs. 2

Does the project's classification of learner's needs statement include the study of both the status of learners and desirable norms? The learner's needs in the project's classification were developed exclusively from the literature of child development.* Tyler feels, however, that only the learner himself knows his present status. A survey, interview, or questionnaire of the learner's themselves is necessary to determine their needs, abilities, and interests. The project's classification, therefore, appears to be only the desirable norms or behavioral standards of learners as perceived by the project staff. The lack of a study of the present status of learners does not fully "identify needed changes in behavioral patterns of the students". It is the evaluator's opinion that neither the time nor staff services were available to conduct such a survey at the time this was suggested.

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* The structural basis for the project's classification follows closely that which is presented by Robert J. Havighurst in his book Developmental Tasks and Education (New York: David McKay Company Inc., 1972).

At this point, and to an equal degree, the statement can be viewed as a theory of child development.

> Child development, specifically, comprises the sequential phases, steps, levels, or stages through which a child's personality passes in his childhood and youth. It is the psychosocial maturational path toward adulthood. 3

Within this definition, it is apparent that many of the project's "needs" such as "for social awareness" and "to achieve an adult sex role", are in fact phases in a persons sociopsychological development.

The above needs should be compared to others in the project's statement, e.g., "for a sense of citizenship" and "to utilize leadership skills". These appear to be desirable changes in behavior (adult identified needs) but not necessarily a part of "the multiple process which are instrumental in forging each individual's personality".[4]

> Development must be differentiated from change. Change implies a transition from one state to another, while development focuses upon the dynamic, one-directional elements of change. Development, therefore, is a process; change is a product. 5

The duality which exists in the project's needs statement--learners needs and developmental stages--may have resulted from research which did not discriminate finely enough between these two factors. It is the opinion of the writer that authors such as Robert J. Haminghurst and David Elkind, as researched for this project, represent positions on the side of learners needs as perceived by adults. Theories of child development as a behavioral process is best understood through the works of Erik H. Erikson, Jean Piaget, and Robert R. Sears.

The projects "Classification of Learners Needs by Age Group" is probably more divergent than was intended. A more careful analysis must be made therefore between needs for which change is the product and needs for which development is a phase in process. This should be given particular attention when curriculum objectives are matched with items contained in the needs statement.

Most needs are generated from the multiplicity of experiences and events occurring within a person's environment. These needs are constantly changing. Who therefore is responsible for meeting the learner's needs at a given point in time? Tyler offers the following caveat: the teacher (or curriculum developer) must avoid confusion in deriving objectives from the studies of student needs by distinguishing "between the needs that are appropriately met by education and needs that are properly met through other social agencies".[6] It would be unreasonable to suggest within the context of this project that full attention be given to such a diffused caveat. The project is not setting objectives for an entire school, but only a portion of the total educational curriculum within an established school, i.e., agriculture. It appears therefore that for the purpose of this project a much more delimiting caveat should be heeded: distinguishing between the needs that are appropriately met by the agriculture and agribusiness curriculum and needs that are properly met through other curricula within the school.

A final note is presented concerning the division of needs into educational, sociological, and psychological domains. Emotional and physiological needs are not identified as needs the project's curriculum is attempting to meet. The classification does not, however, abrogate the emotional and physiological needs of learners. One specific educational curriculum within the total realm of an individual's environment can not meet all his needs. These are needs within the project's classification which may be met only by other social factors. The school must examine those needs best met by the agriculture curriculum and those met by other curricular and social agents, e.g., family, peer groups, religious group, etc.

Evaluative Questionnaire. An eight member advisory committee to the project critiqued the learner's needs statement. The first draft of the statement was reviewed by both the committee and ten educators in the community of Ames, Iowa. Revised copies of the statement were then distributed to committee members at a regularly scheduled meeting. The minutes of subsequent meetings, however, did not contain the comments of the advisory committee nor their consensus on the final draft of the statement. It is not known whether the project staff solicited committee members opinions regarding the statement independent from scheduled meetings.

In an attempt to allow committee members to respond to the statement, and to further document reactions to the final draft, an evaluative questionnaire was developed and sent to each of the committee members. Two mailings were conducted and five of the eight members responded. One member who did not respond to the items on the questionnaire, stated that at the time he received the questionnaire he was not able to locate the document (need's statement) in question and that he "checked with staff members of the Project and was told that the document was still in preparation and had not been distributed in its final form". (The second mailing on the questionnaire was made on March 2, 1977, and at the time of this writing, the final draft of the needs statement had been written October 1, 1976.)

Following, then, are the questions asked of and responses by the project's advisory committee to the project's "Classification of Learners Needs by Age Group."*

1. Are you aware of the purpose for the needs statement? Do you think the needs statement will accomplish this purpose?

   There were no negative responses to this question. Comments included:

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* In most cases responses were only one or two words. One member's comments whose were the most extensive are stated in full. The lack and imbalance of responses to the questionnaire are therefore not used as a primary criteria in the evaluation of the needs statement.

"The statement is broad but should meet the purpose!"

"Much thought and organization have gone into it and I think it's realistic".

"The purpose for the statement is to provide background for curricular decisions relative to scope and sequence. Because of the present emphases on learner centeredness in agriculture education and on humanism in all education, I see this step as vital to the total project. The statement as prepared should provide such background".

2. Are the three categories of learners needs (sociological, psychological, educational) applicable to the development of Project 2000's curriculum?

All committee members felt it was applicable to the curriculum with the following observation:

"Yes, they are applicable. I do have some difficulty seeing relationships among the three categories, however. Sociological and psychological needs are types of basic needs; whereas, educational needs result from and are outgrowths of sociological and psychological needs as well as other forces. There appears to be some lack of consistency in the way the term, needs, is used. Perhaps the inconsistency could be clarified if a definition of the term as used in the classification were included at the bottom of the introductory page. (See Tyler, Basic Principles of Curriculum and Instruction, pp. 7-8)".

3. Do you feel that the items under each age level and needs category accurately represented the needs of the majority of students at those ages?

The responses to this question indicate the difficulty and the question of validity in categorizing needs by age groups.

"Yes, remembering the variability one can find at any age level".

"Difficult to accurately and objectively evaluate. I believe it is categorized as closely as possible".

"(The project staff) have outlined needs for development of decision making and judgmental competence but have not stressed specifically need for manipulative and creative abilities. Many of these must be included in the curriculum for the 12 to 18 year adolescents. Employment preparation is not entirely postsecondary."

"A major weakness is related to the 3.00 classification. I do not agree that the period of "Early Adolescence" includes youth from 12 to 18 years of age. At the time in life when the growth process is so rapid, it is impossible to describe the learner collectively over a span of six years. If this material is to be a workable tool and provide direction for curriculum planning, there shoud be a division between "Early Adolescence" and "Adolescence". This break would have implication for division of curricular recommendations between junior and senior high school levels. As the staff members begin to work with the tool in developing materials, I'm sure they will come to the realization for the need to be more specific".

4. Do you agree with Tyler's curriculum model which bases curriculum objectives on two factors: the kind of behavior to be developed in the student and the context in which this behavior is to operate?

   Only one respondent did not agree with Tyler's concept as stated in this question. He had verbalized his differences at a committee meeting but the minutes did document his concerns. Other comments follow:

   "Yes, I agree with this format for the statement of objectives. If we view education as a change in behavior then I believe we must clearly state the desired change in the objective. It is then possible to measure achievement of the outcome".

   "This also agrees with Lancelot's model which has had much application in the development of vocational agriculture and technical agriculture curricula".

5. Have other scholars, e.g., Benjamin Bloom, Erik Erikson, Paul Goodman, developed models or analyses of the learning process which you believe would have been more applicable to this project?

   Apparently no other single model was more applicable to this project,

   "but a combination of others might be just as good."

   "I prefer Tyler's and Lancelot's".

   "Dr. Tyler has been used as a personal consultant on the project thus his model is best understood".

   "There are other curricular models, but none used as widely over time as the one presented by Tyler. I see the one selected as most appropriate for the purpose".

6. If you were to develop a curriculum, would you have used the same approach? What would you have done differently?

   The curtness of responses to this question makes it difficult to arrive at any conclusion. Although the respondents are familiar with Tyler's model, some of them may not have actually used it in their own work.

   "I really don't know but I believe the system being used is okay".

   "Same approach but with a modification of Tyler".

   "Yes, if possible".

   "I think not. They (the project staff) are on sound footing".

> "I have and am currently using similar approaches to curricular development projects. The crucial step will be the combining and blending of the "needs"----which I view as characteristic of learners rather than needs---and the agriculture-content within the scope and sequence of the curricular materials.

Studies of Contemporary Life Outside the School

Of what importance is the study of contemporary life to deriving educational objectives? If the purpose of the schooling process is to prepare persons for life outside the school, the question is answered. If not, "modern education" would still be characterized by the Latin grammar school of the eighteenth century.

Tyler's answer, however, is student centered and reflects the demands placed on learners by the very complexity and continually changing nature of contemporary life itself.

> The student is much more likely to apply his learning when he recognizes the similarity between the situations encountered in life and the situations in which the learning took place. Furthermore, the student... [is] more likely to perceive the similarity between the life situations and the learning situations when two conditions . . . [are] met: (1) the life situations and the learning situations . . . [are] obviously alike in many respects, and (2) the student . . . [is] given practice in seeking illustrations in his life outside of school for the application of things learned in school. 7

What should be included in studies of contemporary life outside of school? The best starting point for a school establishing its objectives would be the community. For this project a much broader area, such as the State of Iowa, would be more desirable. These studies could include the values, ideals, habits, skills, interests, superstitions, and opinions of the people. The natural resources, health data, social, political, and economic problems, and the arts in the region or state could also be included in such studies.

To what extent has the project made use of contemporary life studies in identifying objectives? Although the project has not conducted or researched such studies per se, the objectives themselves are stated in a manner that the student, through learning activities developed from the objectives, will be exposed to the situations and experiences of life outside the school. In-other-words,if a learner fulfills certain objectives, e.g., analyze the interdependent relationships between agriculture and the environment, he will in fact have been engaged in a study of contemporary life.

Suggestions About Objectives from Subject Specialists

Subject specialists as a source in identifying objectives is the third of five evaluative criteria applied in this section of our report--the relationship between each project activity and the curriculum objectives. Without a doubt the Phase II Forum of Project 2000 was the principle source from which suggestions from subject specialists was gathered. The suggestions from the forum were published under three categories of implications for the project: program restructuring, curriculum, and teaching approaches. A total of thirty-nine implications were listed.*

"The suggestions from subject specialists are often too technical or specialized for identifying objectives". Tyler responds to this criticism by stating that these specialists have not been asked the right questions. The question which is typically asked of subject specialists is: "What should be the elementary instruction for students who are later to carry on much more advanced work in the field?"[8] Writing objectives and conducting instruction based on answers to this question may result in knowledge and experiences with little or no application to the lives of students.

> The question which [specialists] should be asked runs somewhat like this: What can your subject contribute to the education of young people who are not going to be specialists in your field; what can your subject contribute to the layman, the garden variety of citizen? 9

From the answers of specialists to these types of questions, "a list of suggestions regarding the broad functions a particular subject can serve" can be identified.[10] [Emphasis added.]

The project has asked the right questions of its subject specialists. Below are listed the broad functions of agriculture and agribusiness education in Iowa:

1. To educate and prepare individuals for employment in agricultural occupations.
2. To provide opportunities for avocational studies within agriculture.
3. To develop an awareness of and appreciation for the significance of agriculture, food, and food production. [Emphasis added.]

Under each of these functions the specific objectives of the curriculum are then stated.

Although the Forum did result in the identification of three broad functions, its primary purpose was to revise the original basic principles statement. The results of the Forum therefore do not serve as a direct source for objectives themselves; it is through the eight basic principles that objectives reflect the implications of the Forum.

Use of Philosophy

The use of philosophy as a source for identifying objectives has been tantamount to this project. A complete, new philosophy (basic principles) for agriculture and agribusiness education has been written. The composition of this philosophy was the purpose of Phase I of the project. It was later revised according to the implications of the Forum. The philosophy and an evaluation of it have been published.

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* The reader is referred to the document "Project 2000 Forum: Summary of Proceedings" and this Council's evaluation of Phase II for details and further comments.

Within the context of this overview, it seems appropriate to again refer to Tyler for his reasons to using philosophy in selecting objectives.

> The suggestions regarding objectives obtained from the three sources previously cited provide more than any school should attempt to incorporate in its educational program. . . . It is essential therefore to select the number of objectives that can actually be attained in significant degree in the time available, and that these be really important ones. Furthermore, this group of objectives should be highly consistent so that the student is not torn by contradictory patterns of human behavior.
>
> To select a group of a few highly important, consistent objectives it is necessary to screen the heterogeneous collection of objectives thus far obtained so as to eliminate the unimportant and the contradictory ones. The educational and social philosophy to which the school is commited can serve as the first screen.[11]

To what extent has the project's philosophy been used to "screen" objectives? The difficulty of applying the criteria of philosophy as a "screening" agent to objectives in this project is that the philosophy has preceded the objectives. In effect, "philosophy as a screen" as applied to objectives becomes "philosophy as a matrix" at this point in the project. Objectives identified from using the two preceding sources--studies of learners needs and subject specialists--can be matched or fitted into one of the eight divisions (principles) of the project's philosophy. Although this "pigeonholing" hypothesis was not actually applied to the objectives initially formulated from other sources, the hypothesis can be tested with the objectives in their final form.

The difference between Tyler's "screen" and the project's "matrix", however, is only in the process and not the end result. Admittedly, the project's philosophy has had its greatest impact as a direct source of objectives, but it has also ensured the consistency and homogeneity of objectives from other sources which Tyler sees as the primary use of philosophy.

The next question, as asked by Dr. William Stanley at the December 14 and 15 meeting with the project staff, is: Do you write a philosophy to cause people to change, or change a philosophy to be consistent with what people are currently doing? Stanley suggests that by tracing the curriculum development process--

philosophy ⟶ objectives ⟶ learning experiences

--this question can be answered. If learning experiences do not reflect the philosophy, it should be changed. This process will be applied when the curriculum guidelines are examined in the next section of this report, and an attempt will be made to determine whether or not the project's philosophy needs to be changed.

Use of a Psychology of Learning

If an educational and social philosophy serves to screen suggested objectives from the first three sources for their homogeneity, then a psychology of learning can be applied to the sequencing of homogenous objectives to conform with conditions intrinsic in learning. "Psychology of learning gives us some idea of the length of time required to attain an objective and the age levels at which the effort is most efficiently employed".[12] (Emphasis added.) This process of grade-placement of objectives enables an instructor to sequence objectives at particular points in the educational program or curriculum.

A psychology of learning according to Tyler can also be used to recognize the conditions necessary for the achieving objectives and the multiple outcomes resulting from most learning experiences.

> This suggests what may also be suggested by one's philosophy of education, that the various objectives be examined to see that they are mutually consistent and that they permit some degree of integration and coherent unification in the mind and action of the student so that the maximum psychological benefit of learning can thus be derived. 13 (Emphasis added.)

Although Tyler has described the use of a psychology of learning, a definition of this term is necessary so as to distinguish it from other disciplines or studies related to education, such as, educational psychology.

A theory or psychology of learning can best be distinguished from other terms through a definition of learning:

> Learning is the process by which an activity originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native response tendencies, maturation, or temporary states of the organism (e.g., fatigue, drugs, etc.). 14

A theory of psychology of learning attempts to answer questions such as:

1. What are the limits of learning?
2. What is the role of practice in learning?
3. How important are drives and incentives, rewards and punishments?
4. What is the place of understanding and insight?
5. Does learning one thing help you learn something else?
6. What happens when we remember and when we forget?[15]

Learning theory examines learners needs from the standpoint of the processes by which behavior can be changed, but does not define the intended behavior itself. Compared to child development theory which states that "quantitative behavior can repeatedly be reduced to previous levels of behavior"[16], a theory of learning addresses nonschematic and noninnate responses to "moment situations" within either stimulus-response or cognitive preferences. (See Hilgard for differences between stimulus-response and cognitive theorists.)

Major authors and their theories of learning include Edward L. Thorndike's Connectionism, Edwin R. Gutherie's Contiguous Conditioning, B. F. Skinner's Operant Conditioning, Clark L. Hull's Systematic Behavior Theory, and Edward C. Tolman's Sign Learning. This evaluation does not intend to discuss the premises of or make distinctions between these theories of learning but merely to mention these names as a point of information for interested readers and the project staff. To our knowledge the project has not researched or applied any of these theories.*

(It is the evaluator's opinion that one of the most utilitarian theories for sequencing objectives, albeit the aforementioned, is Benjamin S. Bloom's Taxonomy of Educational Objectives.[17] The project proposal makes reference to stating objectives in the affective, cognitive, and psychomotor domains, as schematized by Bloom, but it appears that the project's staff did not deem this provision suitable.)

The following subsection considers what is believed by the evaluator to be an unstated, nonformal, but underlying screen for many of the project's objectives.

Career Education as Theory. The general concept of a theory of learning, according to Tyler, is to enable the curriculum developer to determine goals, distinguish changes in human beings, decide upon "the appropriateness of particular objectives at particular points in the sequence of the educational program", and to establish "the conditions requisite for the learning of certain types of objectives". Learning theory in effect serves as a curriculum binder; consistency, coherency, integration, and reinforcement are the primary aggregates.

The purpose of this section is to examine the concept of career education as a curriculum binder in this project. Career education is not a theory of learning, and although its use in this project is not explicitly stated, it has been a unifying agent in identifying objectives. The project has not embraced career education in its entirety and a complete discussion of the term is outside the confines of this report; therefore, only the major components of the concept as they apply to curriculum development will be highlighted in this section.

A definition of career education is usually applied to an entire system of education and not just a few school subjects or grade levels. Although there are numerous definitions of the term, Dr. Kenneth Hoyt describes it as follows:

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* The project staff is referred to William H. Kilpatrick's, Philosophy of Education, for a theory of learning based on the experimental construct of pragmatism. Kilpatrick's definition of learning and the structure of his theory, however, vary markedly from the approaches taken by the theorists mentioned above. (Kilpatrick is cited here because he was a major exponent of Dewey's philosophy of education, although he is sometimes referred to as a romatic progressive.)

> Career education is the total effort of public education and the community to help all individuals become familiar with the values of a work-oriented society, to integrate those values into their personal value systems, and to implement those values in their lives in such a way that work becomes possible, meaningful, and satisfying to each individual. 18

Career education is a concept which is designed to be implemented at all grade levels and in all subjects or classes. This definition is a starting point for distinguishing and focusing curriculum goals.

The following model provides a further clarification of the concept which begins to form as a screen for objectives or as theory for developing curriculum.

Basic Career Education Elements

Career Education Elements	Element Outcomes
1. Career awareness - knowledge of the total spectrum of careers	1. Career identity - role or roles within the world of work
2. Self-awareness - knowledge of the components that make up self	2. Self-identity - know oneself-consistent value system
3. Appreciations, attitudes - life roles; feelings toward self and others in respect to society and economics	3. Self-social fulfillment - active work role; satisfying work role
4. Decision-making skills - applying information to rational processes to reach decisions	4. Career decisions - career direction; has a plan for career development
5. Economic awareness - perception of processes in production, distribution, and consumption	5. Economic understanding - solve personal and social problems of an economic environment
6. Skill awareness and beginning competence skills - ways in which man extends his behavior	6. Employment skills - competence in performance of job-related tasks
7. Employability skills - social and communication skills appropriate to career placement	7. Career placement - employed in line with career development plan
8. Educational awareness - perception of relationship between education and life roles	8. Educational identity - ability to select educational avenues to develop career plans

Source: Lousie J. Keller, *Career Education In-Service Guide*, (Morristown, N.J.: General Learning Corporation, 1972).

These elements can be seen not only as a means for introducing consistency and unification into the selection of objectives, but they in and among themselves form a sequence which is transferable to the grade-placement of objectives processes itself. In addition, these elements are adaptable to almost any school subject: awareness of careers in mathematics, decision-making skills in government, employability skills in language-related occupations, etc. By matching specific project objectives to these elements, the reader will gain an understanding of the extent to which concepts of career education are evident in the objectives of this project.

Summary

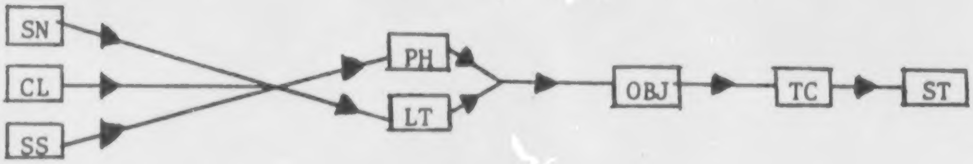
This overview has listed and explained the major sources, according to Ralph Tyler, used in identifying curriculum objectives. This project has not used all of the sources described by Tyler but has had to select those which were most appropriate, and which time and money permitted, for a curriculum in agriculture and agribusiness education in Iowa. Neither Tyler nor the project suggest that the list of sources is complete and adaptable to all educational programs.

Introductory to the summarization of this overview, two diagrams are presented. The first traces the sources and process used by Tyler for identifying objectives. The second diagram illustrates the project's approach.

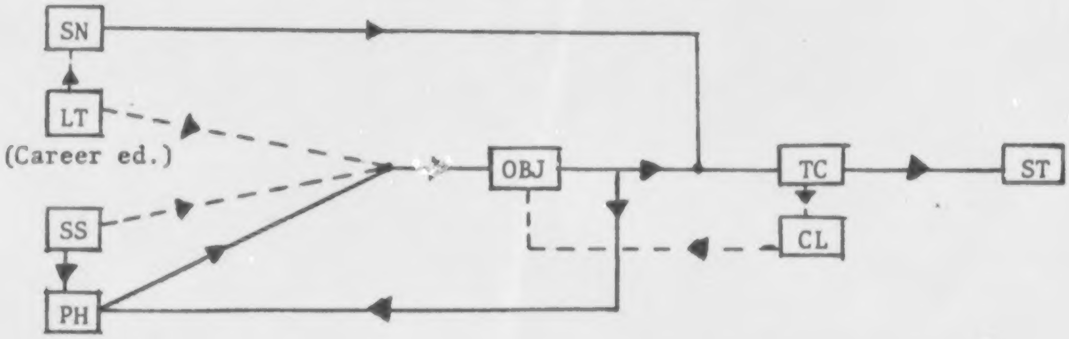
SN - student needs
CL - contemporary life
SS - subject specialists
PH - philosophy

LT - learning theory
OBJ - objectives
ST - students
TC - teacher

TYLER'S PROCESS



PROJECT'S APPROACH



The following conclusions are made regarding the project's approach to identifying objectives as drawn from these diagrams and the overview:

1. Student Needs (Classification of Learner's Needs by Age Group.) The project's needs statement is primarily based on research of child development theory and contains key elements of the career education concept. No survey of students themselves was conducted; therefore, the statement fails to identify needed changes in behavior patterns--the difference between acceptable norms and student-felt needs. The needs statement is only an indirect source of objectives through elements of career education as a theory of learning. Student needs run parallel to objectives in the diagram because they are later matched with objectives. In effect, the needs statement and curriculum guidelines are distinct when they reach the teacher.

2. Contemporary Life. The project made no study of contemporary life outside the school. The feasibility of such a study on a statewide basis for this project is questionable. The incorporation of community' attitudes, values, prejudice, etc., into a schools' program of study should be considered on a community-to-community basis. Injecting statewide norms into one curriculum--agriculture--might be invalid. In the diagram, the teacher is left with the option of studying contemporary life outside school and adjusting the project's objectives accordingly.

3. Subject Specialists (Project 2000 Forum). In both Tyler's and the project's approaches, subject specialists are a direct source of suggestions regarding major functions a subject might serve. These functions according to Tyler should serve all students and not just those who will become specialists in the field. The Phase II Forum was the major source of suggestions from subject specialists for broad functions, but only as an indirect source, via the basic principles statement, for objectives themselves. This distinction between the use of the implications of the Forum (subject specialists) as a source for functions and objectives is shown in the diagram by a dashed line representing functions and a solid line the revision of the basic principles.

4. Philosophy. The project's philosophy is the most important source of objectives. It was not used to "screen" objectives, as shown in Tyler's model, but rather all objectives in the project's approach can be traced back and inserted into the philosophy, including those developed from other sources. The philosophy-objectives loop also illustrate Dr. Stanley's concern that the philosophy can be changed if learning experiences derived from objectives are not compatible. The project's diagram further shows that the learners needs statement of this project has no connection with the philosophy. It is therefore questionable whether the philosophy will be changed; it will depend upon the reactions between learning experiences and student's needs.

5. Learning Theory. The project has not used a clearly defined psychology or theory of learning. It has adopted certain elements of the career

education concept which serves Tyler's purpose of learning theory as a technique for unifying objectives. The degree of permeation of these elements into the project's objectives can not be overlooked, albiet the lack of a direct statement in the project's proposal that career education concepts will be applied in this project. Elements of the concept are evident both as objectives themselves and as desired norms in the learner's needs statement. In the project's diagram the influence of the career education concept is shown as a dashed line. This illustrates the fact that this concept is evident but not specifically stated as a source for objectives in this project.

Conclusion

The purpose of this overview has been twofold: (1) to describe the relationship of all project activities within the curriculum development continuum as a whole, and (2) to establish the degree to which the project's activities have served as sources for identifying curriculum level objectives. As a guide to accomplish these purposes, this evaluation has compared the project's curriculum development process with the process outlined by Ralph Tyler.

The major conclusion of this overview is that the project's principle source for identifying objectives is the project's philosophy or basic principles statement. Other project activities or sources, the classification of learners needs and subject specialists (Phase II Forum), are indirect to the formation of objectives through the career education concept and the basic principles statement, respectively.

Phase III: The Curriculum Guidelines

The Schema. The major objective of Phase Three was the construction of the agriculture and agribusiness education curriculum guidelines. These guidelines are represented by the pyramidal schema shown on the following page. This schema, developed by the project staff, coincides with the analysis and conclusion made in the previous section of this report: the basic principles are the primary source used for identifying curriculum level objectives. The purposes and functions stages in the schema are applied and specific condensations of this original source. The remaining stages in the schema are subsequent and traceable to the basic principles. As stated in the project proposal, Phase Three will be the development of "curriculum guidelines based on philosophic constructs, definition, and purposes developed in Objective [Phase] Two."

Matching Objectives to Basic Principles. Having illustrated and described the process used to derive objectives, it would be appropriate at this point to match objectives with basic principles as a test of the validity of the process. ("Validity refers to the degree to which any measure or procedure succeeds in doing what it purports to do".[19]) In order for the test itself to be valid, the objectives and basic principles must be reliable objects of measurement. Among other things this means that that which is being measured must not fluctuate or change. In this test only the curriculum level objectives will be compared to the basic principles. All other elements in the schema subsequent to this level are subject to change resulting from the field testing of the curriculum guidelines in the fifth phase. The criterion of this matching process is therefore established on the validity of "the theory underlying the formulation of the hypothesis concerning the relationship of the activities to the objectives"[20], i.e., the derivation of objectives from the basic principles. The diagram and tables presented on pages 19, 22, and 23 depict this process.

The Project. The diagram on page 19, developed by the project staff in September, 1976, simplifies the schema from page 18 and matches the *stages* of the curriculum with the basic principles. The project's diagram, however, shows that not all of the basic principles are used to develop objectives. The pragmatic and democratic orientations appear to encompass the entire curriculum and are not identified with any one particular objective. This seems valid for two reasons.

First, it was shown in the Phase One evaluation that all the basic principles were characteristic of the philosophy of pragmatism. In addition, the principle "Pragmatic Orientation and Values Development" is primarily a statement of pragmatic values and not a structural description of the philosophy itself. It should be noted that the project's diagram *correctly* bifurcates the title of this principle and places the Values Orientation (Development) portion opposite the curriculum objectives. For this analysis, therefore, the *content* of this principle will be identified with the Values Orientation heading as it appears opposite the objectives. If it can be shown that an objective is derived from a basic principle, it is necessarily pragmatic because all the principles go to compose a pragmatic philosophy.

SCHEMA

Basic Principles for Agriculture and Agribusiness Education

↓

Purposes of Agriculture and Agribusiness Education

↓

Functions of Agriculture and Agribusiness Education

↓

Curriculum Objectives by Function

↓

Instructional Level Objectives

↓

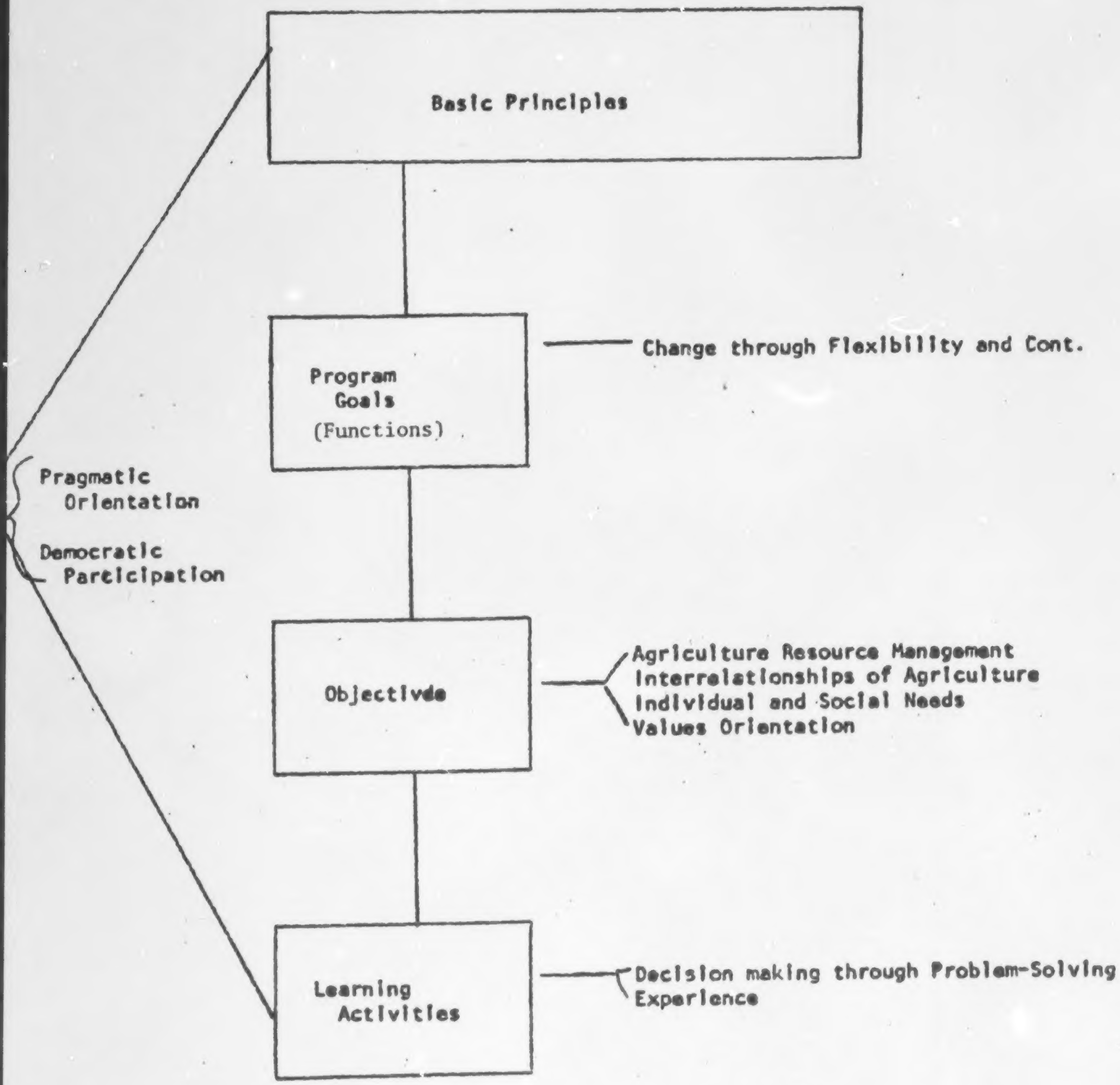
Suggested Subject Matter

↓

Suggested Learning Activities
(Lower Elementary, Upper Elementary, Junior High, Senior High, Post-Secondary)

↓

Resource Material


Basic Principles
Program Goals (Functions)
Change through Flexibility and Cont.
Pragmatic Orientation
Democratic Participation
Objectivde
Agriculture Resource Management
Interrelationships of Agriculture
Individual and Social Needs
Values Orientation
Learning Activities
Decision making through Problem-Solving Experience

Second, addressing the validity of the placement of the democratic principle in the project's diagram, the very nature of pragmatism, hence, all the basic principles, is based on the value of functioning in a democratic environment. Each objective is open to "the blending of individual thought and group sanction",[21] the aim of education (and the project's objectives) being the process of an individuals continued growth.

> Now this idea cannot be applied to all the members of a society except where there is adequate provision for the reconstruction of social habits and institutions by means of wide stimulation arising from equitably distributed interests. And this means a democratic society. 22

It appears that the principles, functions, objectives, and learning activities --the curriculum--provide an equitable distribution of interests within the concept of agriculture education.

The location of the "Change through Flexibility and Continuity" principle opposite program functions and not the objectives could be reasoned through an examination of the first sentence under that principle. "Agriculture and agribusiness education is characterized by flexibility and adaptability rather than rigidity in its attempt to enable the student to cope intelligently with constant and significant change"[23] (Emphasis added.) The program functions provide the student with three choices within the curriculum depending upon how he or she adapts to individual and environment changes. (Awareness and appreciation of the significance of agriculture, Function 3, may or may not lead to avocational or employment interests in agriculture.)

Does, however, the position of this principle imply that the functions themselves are subject to change? Assuming that the objectives are not, it is difficult to assume that the functions would be. This principle does state that "the need exists for a continuous reassessment of educational activities."[24] If a significant degree of change did occur, resulting in the revision of the program functions, the philosophy would also require a revision. It is most likely that any changes in the curriculum will be in the learning activities, after the completion of the field testing, as a "revolutionary situation" does not appear imminent to significantly alter the functions and objectives. For this reason it appears that the principle would have been better placed opposite the learning activities in the project diagram.

The two principles shown next to the learning activities are appropriately placed. Since objectives are primarily "a statement of changes to take place in students"[25] and learning activities "situations that evoke the kind of behavior desired"[26], the problem-solving and experience principles are evocatives and not merely declaratives of behavior. As will be shown in the evaluator's analysis which follows, some objectives can only be reached or derived through these two principles.

The Evaluation. The project's diagram shows objectives being drawn from four principles. The approach taken in this evaluation to the matching process was to assume that objectives could be written from all of the principles. (Excluding the democratic and pragmatic as permeating the entire curriculum.) Principles in the project's diagram which do not appear opposite the objectives (Experience, etc.) are assumed in this analysis to be in that position.

Two tables were constructed for the evaluative analysis. The first, page 22, is the evaluator's matching of the twenty-four objectives with the six outstanding principles. The first number of each objective denotes the function and the number following the decimal point the specific objective under that function. Several objectives are matched with more than one principle. For example, objective 1.2, "Explore occupations in agriculture", is dependent upon experiencing various occupations and the individual's choice of those he or she wishes to explore.

The second table, page 23, illustrates the particular principles used to develop objectives under each function. Objectives developed from the "Agricultural Resource Management" principle, for example, can only be located under Function 3, etc. This table should now be compared to the project's diagram.

For this analysis, key words in each objective largely determined the major principle to which an objective would be identified. An objective beginning with the word "explore" certainly requires experience if a realistic choice or decision is to be made after completing that objective. Objectives which seek to "develop" awareness, understandings, or skills, for the most part, find their greatest affinity and validity with meeting individual and social needs. Other objectives beginning with "describe", "distinguish", etc., were examined more on their actual content than key words.

In all cases, each objective must have had a corresponding learning activity, i.e., experience, in order for that objective to be matched with a principle. Any objective which failed to provide a related experience and was based, for instance, solely on the acquisition of knowledge, as in idealism, would have been excluded.

Conclusions

1. All of the objectives can be shown to be derived from at least one of the basic principles. This conclusion is based on the philosophical construct of experience in pragmatism.

2. The pragmatic and democratic principles are a priori to the entire curriculum, thus the objectives. The eight basic principles characterize a pragmatic philosophy; a democracy is the milieu of the philosophy.

3. With few exceptions, the project's diagram, and the process and matching it illustrates, agrees with this evaluation. Certain principles can be identified with different levels in the curriculum.

4. Articulation of subject matter and learning activities will be critical to the students achievement of objectives. It is not proposed in this evaluation to fill the gaps in Table 2 with objectives. A gap does not mean a deficiency of objectives nor a lack of articulation. It does show, by example, that unless a student has an awareness of agriculture, he may not learn

TABLE 1

A Comparison of Principles with Objectives

BASIC PRINCIPLE	OBJECTIVE
Democratic Participation	*
Pragmatic Orientation and Values Development	* 1.3, 1.7, 1.9, 1.10, 3.7-3.10
Change through Flexibility and Continuity	1.6, 1.10
Decision Making through Problem-Solving	1.3, 1.6, 1.7, 1.10
Experience Centered	1.2, 1.5, 1.6, 1.10, 2.1, 2.3, 2.4
Individual and Social Needs	1.1-1.10, 2.1-2.4, 3.1 3.6-3.10
Agricultural Resource Management	3.1, 3.3-3.6, 3.8-3.10
Interrelationships of Agriculture	1.10, 1.11, 3.2-3.4, 3.6 3.10

* Permeates the entire curriculum guide.

TABLE 2

A Comparison of Basic Principles with Instructional Function

	FUNCTION		
	1 Preparation	2 Avocational	3 Awareness
Democratic Participation	-	-	-
Pragmatic Orientation and Values Development	- X	-	- X
Change through Flexibility and Continuity	X		
Decision Making through Problem-Solving	X		
Experience Centered	X	X	
Individual and Social Needs	X	X	X
Agricultural Resource Management			X
Interrelationships of Agriculture	X		X

values development through purely avocational interests. Also, it may not be necessary for a student involved in agriculture education only through Function 1 to make decisions through problem-solving techniques. It is the learning activities which will determine the degree of articulation and, hence, the stability of the basic principles.

Form of Objectives

The second of the five step process of curriculum development outlined by Tyler (see p. 18) is stating the objectives in a form from which learning experiences can be selected. Attaining objectives through learning experiences implies that "the real purpose of education is not to have the instructor perform certain activities but to bring about significant changes in the students' patterns of behavior".[27] The learner changes his behavior through a learning experience; an objective is the teacher's guide to learning experiences.

> The most useful form for stating objectives is to express them in terms which identify both the kind of behavior to be developed in the student and the content or area of life in which this behavior is to operate. 28

An example of an objective stated in these terms would be "To Describe the Growth of a Plant". The behavior desired in the student is that of oral or written description and the content of the objective is the growth process of a plant. Excluding the word "describe" would not tell the student what he is expected to do with his knowledge of plants, and behavior is void without the parameters within which it is expected to operate.

Tyler is careful to offer a caveat regarding words used to describe the behavioral component of an objective. Words, such as "appreciate", "understand", "develop", "know", etc., may not indicate clearly enough to students the behavior expected of them. It is necessary for the instructor to explain more fully what those words mean in terms of the students' behavior. Whereas Tyler permits the use of such behavioral descriptions, providing that the descriptor is accompanied by the content to which it is to be applied, Robert Mager[29] feels that behavior stated in these terms is open to misinterpretation and does not describe what the learner will be doing.

It is, however, only the curriculum level objectives which are not couched in terms of actions the students will be doing. "Action" or "doing" descriptors according to Mager include such words as "identify", "compare", "list", "write", etc. Viewing the project curriculum as a whole, it is at the more important levels of instructional objectives and suggested learning activities that "doing" descriptors appear.

Considering the depth of the project curriculum with "doing" or instructional objectives assigned to each curriculum objective, the curriculum level objectives appear more important for the teacher in terms of organizing instruction than to the student in terms of his expected behavior. The curriculum objectives in this project are stated in a form helpful to selecting learning experiences. Instructional objectives more clearly define student behavior. As stated previously, the objectives can only be achieved through learning experiences.

Strategies for Curriculum Completion and Evaluation

The project schema includes four levels beyond curriculum objectives: instructional objectives, suggested subject matter, suggested learning activities, and resource materials. All of these levels, except resource materials, have been written for each of the twenty-five curriculum objectives. (Resource materials are to be compiled during the field testing phase*.) These levels of the curriculum are subject to change and final approval pending the completion of the field test. Further evaluation of the other three completed levels is the curriculum, at this time, would not reflect the refining processes of the field test thus the true quality of the final document. The remaining evaluations to be applied to the curriculum will therefore be accomplished at the end of the fifth phase.

This Council has been appointed to serve as third part evaluators for Phase Five of the project. The various aspects of the final evaluation effort of the completed curriculum will include the following:

1. Analysis of the final curriculum according to the latter three stages of Tyler's model. (See page 2)
2. Comparison of the final curriculum with a similar curriculum developed in the State of Iowa in 1973.**
3. Identification of changes in the curriculum as it now exists resulting from the completion and application of the administrative guidelines.
4. Status of the learner's needs statement with regards to the philosophy and final curriculum.
5. Degree of continuity in articulation from one grade level to the next.

Contingencies

The following procedures, as stated on page 15 in the project proposal, were not performed on the curriculum as it presently exists:

1. Curriculum level objectives were not reviewed by local teachers and area school representatives. (Paragraph 4.)
2. Instructional objectives were not "reviewed by curriculum specialists and selected individuals from all instructional and administrative levels of the agricultural education profession and these suggestions incorporated into the statement of objectives for each instructional objective". (Paragraph 5.)

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* See research proposal, No. S-917, submitted to the Iowa Department of Public Instruction, March 23, 1977.

** "Agribusiness and Natural Resource Education", 10 vols. Joint publication of Iowa State University and Iowa Department of Public Instruction. (Des Moines, Iowa: Information and Public Services Section, Department of Public Instruction, 1973).

3. Evaluation procedures were not developed for each instructional objective. (Paragraph 6.)

4. "Selected teachers, teacher educators and administrators (were not) assembled on the campus of Iowa State University to review and suggest improvements in the statements of instructional objectives, suggested subject matter content, learning activities, and evaluative procedures". (Paragraph 7.)

The reason these project objectives were not met was due to a major redirection taken by the project staff in terms of developing the curriculum level objectives. The new approach taken by the project staff resulted in a significant loss of time.

From approximately mid-August to mid-October of 1976 the staff constructed a document entitled "Concept Areas in Agriculture and Agribusiness Education". This document identified thirty-four broad concept areas in agriculture which was, in effect, an organization of agricultural subject matter. This paper was submitted to a group of sixteen teachers representing all grade levels at a workshop held at Iowa State University on October 22 and 23, 1976. The participants were asked to determine the grade level at which the agricultural concepts would be introduced and taught. The results of that workshop were studied until December.

On December 14 and 15 the project staff met with Drs. Ralph Tyler and William Stanley, project consultants, and Dr. Jim Clause. These three persons critiqued the work accomplished on the project to that date. The major criticism of that meeting was directed at the concept areas statement developed over the previous four months: curriculum objectives should not be based on subject matter alone, but include the basic principles and learner's needs statement. This observation completely redirected the approach previously taken in the project. Four months of work was shelved as a result of the new direction taken after the December meeting which is the major reason the project objectives listed above were not accomplished.

The last meeting held by the project staff with its advisory committee was November 17, 1976. An advisory committee meeting scheduled for January 26 was not held. The advisory committee to the project therefore has not reviewed or commented on the curriculum as it currently exists. It is not known what effect this breach in second party advice may have had on the development of the curriculum.

A final observation concerns the conspicuous lack of contributions by non-educators in Phase Three activities. Farmers, owners of agribusinesses, and other persons employed in agriculture related occupations, were not directly involved in writing objectives, subject matter, etc. The staff did solicit the opinions of non-educators in the second and fourth phases of the project.

Phase IV: The Administrative Guidelines

Introduction. The fourth and final phase under investigation in this evaluation is the development of the administrative guidelines. These guidelines are to assist local teachers and administrators, state supervisors, and teacher educators in the implementation of the curriculum guidelines in the local school setting.

> The curriculum approaches identified and refined (in Phase III) will serve as the foundation upon which new approaches to program restructuring will be built. 30

A workshop was held to develop these guidelines on the campus of Iowa State University on January 21-22, 1977. A Phase IV administrative guidelines committee of twenty-two persons attended the two-day workshop. This committee included elementary, secondary, and postsecondary teachers and administrators, personnel from the Department of Public Instruction, curriculum specialists, students at I.S.U., and parents.

After an orientation session to the entire project, the participants were divided into four or five small groups. Each group was assigned two of the major areas listed on page 28 relative to developing the guidelines. For each of the nine areas a list of questions was provided to give direction and focus to group deliberations.

Each group reviewed and amended the other groups' work through a series of rotations. Through this process at least three different groups made contributions to each of the nine suggested areas for discussion.

> Suggestions provided by these individuals will be incorporated into the tentative structure for administering the new curriculum for vocational agriculture at state, area, and local levels. 31

Reactions to the Workshop. The project evaluator for the Council conducted telephone interviews with six of the twenty-two members of the administrative guidelines committee. Those interviewed included an elementary and a junior high school teacher, a high school and an area community college vocational agriculture instructor, a curriculum consultant from an urban school system, and an elementary school administrator. Two of these six persons had participated in a previous phase of the project.

Excluded from these interviews were farmers and their wives and Department of Public Instruction personnel. The former because of lack of any direct involvement with schooling processes and the latter because of oversight responsibilities related to state program approvals.

Each question asked of those interviewed is listed followed by a summary of all responses to that question.

1. Do you feel you have a clear picture of the project as a whole?

Suggested Areas for Discussion
Phase IV Task Force Meeting

I. Sequencing instructional content and learning activities (K-14).

II. Integrating agricultural concepts into present curriculum (K-14).

III. Supervising agriculture and agribusiness education program activities (K-14).

IV. Determining amount of content at specific instructional levels (K-14).

V. Measuring progress of local school in meeting curriculum goals (K-14).

VI. In-service training for teachers (K-14).

VII. Ascertaining what agriculture and agribusiness education concepts are presently being taught and how to build new concepts into what is presently being taught (K-14).

VIII. Involving community representatives and agencies in implementing agriculture and agribusiness education programs in local schools (K-14).

IX. Providing experiences (classroom, shop, on-the-job) K-14.

Source: Project 2000, "Identification of Major Points for Consideration in Development of Program Structure Guidelines" (Ames, Iowa: Iowa State University, January 19, 1977). (Mimeographed.)

The project staff is to be complimented on presenting a comprehensive overview of the entire project. Unanimous, positive response to this question warrents the commendation. The two-day conference sharpened peoples perceptions of the project as a whole, even though the full implications of the program could not be realized at the time of the conference.

2. Did the project staff adequately prepare you for the tasks you would be performing as a member of the administrative guidelines committee? Were you comfortable with your assignment?

   For persons not experienced with implementing a curriculum in a K-12 school system, the concept of administrative guidelines was difficult to grasp on first exposure. Once the participants had assembled in small groups and the project staff circulated from table-to-table, a better understanding of the tasks evolved on a learning-by doing basis. Individual compatibilities with the assignment may have been enhanced if typical examples of the functioning of teachers, principals, students, and DPI personnel within an administrative guideline were illustrated.

3. Do you feel the work sessions were conducted in a manner which provided encouragement for participation of all persons? Were there any operational details about the work sessions that should have been handled differently?

   The family farm members may have felt stiffled within an environment composed largely of professional educators. Their contributions were minimal in most groups. It is this evaluator's opinion that a concentrated effort by each chairperson was needed to draw farm family members into the conversations.

   The general operating details were excellent. Mixing and rotating participants stimulated interaction and in most cases prompted greater participation. The conference was handled efficiently within the time limits and adjustments, when needed, were made competently by the project staff.

4. Within your own group was the majority opinion accepted on most of the guidelines selected?

   There were no negative responses to this question. Arriving at a majority opinion, in some cases, required establishing a basic understanding of what the group was going after by "pulling people up out of a personal plane and into a total plane" or resolving communication problems between group members. One person felt that more disagreement would have enhanced thinking processes. Conference work sheets might have facilitated more give and take had they contained open-ended rather than topical questions.

5. To what extent did your group make use of materials developed in the first three phases of the project (basic principles statement, forum results, and the three curriculum functions)?

The three functions of agriculture and agribusiness education as contained in the basic principles statement were used most frequently. The eight basic principles, forum implications, and twenty-six curriculum concepts under the three functions were rarely if ever integrated into the administrative guidelines as distinct units. Most participants maintained an awareness of the projects objectives under each phase. Any misunderstandings were clarified through a group consensus.

6. Do you believe that the task force meeting was the best way the administrative guidelines could have been constructed?

   Most respondents agreed that the task force technique with a diversified group of participants is one of the best ways for constructing such guidelines. One person felt a little more intragroup structure was necessary, provided it did not expedite the development process too rapidly. Another felt the family farm members to be out of their milieu and their input might have been more useful during Phase III of the project.

   One other interviewee felt the task force meeting was "probably much to-do about nothing". Unless there is pressure or emphasis from the Department of Public Instruction on local schools to implement the curriculum, the administrative guidelines will not be followed simply because they have been published and disseminated.

7. Is there a need for an articulated, K-14 agriculture curriculum in Iowa's schools?

   Yes, definitely, within the three functions of agriculture education as stated in the basic principles statement. At what level within a K-14 system, however, should the curriculum receive the greatest emphasis towards implementation? Several respondents felt that different grade levels will require varying degrees of impetus, but there is disagreement at what levels this should occur. It is the evaluator's opinion that a sample survey, of some sort, of teachers at all grade levels needs to be taken to answer the previous question. The twenty-six curriculum concepts might form the content of such a survey. Large and small school systems must also be considered. This leads to the next question.

8. What is the potential for acceptance and implementation of the curriculum?

   This question elicited a wide range of responses.

   -- Implementation will depend upon each school's priorities and the attitudes toward the curriculum in each community.

   -- The need for the curriculum must be justified at all levels from the state department of education to students and parents.

-- Pre-service training of teachers is a key point in the implementation and maintenance of the program.

-- Teachers will not feel qualified to use the curriculum unless they are properly in-serviced and can obtain hands-on teaching materials for the classroom.

-- All educational organizations must be aware of the objectives and benefits of the program.

-- Curriculum advisory committees within larger school systems are an important vehicle to be used during implementation.

-- The project staff should establish a contact person, probably a teacher, within each school who is using the curriculum and can monitor its assimilation into all grade levels.

-- Special interest groups, such as, gifted and talented and basic skills proponents pose stumbling blocks particularly in smaller schools.

9. What problems might the project staff encounter with teachers and administrators implementing the curriculum during the field testing phase of the project?

Some of the problems were provided in response to the previous question. The respondents continue in answer to this question with other obstacles and a number of methods which can be used to overcome them.

-- Teachers without a background in agriculture will probably have trouble getting enthused with the project.

-- The curriculum concepts can probably be integrated into the lower grades, but children must be shown how agriculture has a direct application to their lives.

-- Considerable rigidty in teaching contracts is resulting from collective bargaining. This will have a direct impact on the quantity of curriculum content and the number of school days available for in-service training.

-- With the above in mind, incentives for in-service training including stipends and college credit may have to be considered.

-- Rapport must be established between the area schools, area education agencies, department of public instruction, and the school of agriculture at I.S.U.

-- The project staff should consider in-servicing one agriculture teacher within a school system who in turn would return to his community to conduct the in-servicing of other teachers, serve as a resource person, provide motivation, and monitor and follow-up to I.S.U. on the status of implementation. A contact person within each school appears to be essential for the programs continuation and motivation.

-- The program must sell itself. A strong nucleus must be established and allowed to grow from there.

-- One of the hardest tasks will be to get classroom materials into the hands of teachers without having to offer a specific class in agriculture or agribusiness.

-- The number of workshops needed to initiate the program should be held to a minimum.

-- The benefits of the project to individual students and not I.S.U. must be made clear.

-- The cost of implementing the curriculum at each grade level should be calculated.

-- Area education agencies should be used as much as possible for on-going teacher training and to assure articulation.

There appears to be two major points that will require special planning by the project staff if the results of this project are to be visible and still in use in ten years time: (1) the means by which the State department of education can promote the program, and (2) a method by which I.S.U. can monitor the status of programs within each school. (These reactions to the workshop were submitted to the project staff in February, 1977.)

The Guidelines. At the time this evaluation was submitted to the project staff, the third party evaluators had not received a final copy of the administrative guidelines. The twenty-five page, type written draft of the workshop proceedings was not appropriate nor adequate upon which to base an evaluation of the guidelines. It appears at this point in the project that evaluation of the completed guidelines will only be possible in the context of the field testing phase.

Footnotes

[1] Ralph W. Tyler, Basic Principles of Curriculum and Instruction (Chicago: The University of Chicago Press, 1949.)

[2] Ibid., p. 7.

[3] Henry H. Maier, Three Theories of Child Development (New York: Harper & Row Publications, 1965), p. 3.

[4] Loc. cit.

[5] Loc. cit.

[6] Tyler, op. cit., p. 15.

[7] Ibid., p. 18.

[8] Ibid., p. 26.

[9] Loc. cit.

[10] Ibid., p. 27.

[11] Ibid., p. 33.

[12] Ibid., p. 38.

[13] Ibid., p. 41.

[14] Ernest R. Hilgard and Gordon H. Bower, Theories of Learning (3d ed.; New York: Appleton-Century-Crofts, 1966), p. 2.

[15] Ibid., pp. 7-8.

[16] Maier, op. cit., p. 4.

[17] Benjamin S. Bloom, ed., Taxonomy of Educational Objectives: The Classification of Educational Goals (New York: David McKay Company, Inc., 1956).

[18] Kenneth B. Hoyt, Rupert N. Evans, Edward F. Mackin, and Garth L. Mangum, Career Education: What It Is and How To Do It (2d ed.; Salt Lake City: Olympus Publishing Company, 1974), p. 15.

[19] Edward A. Suchman, Evaluative Research (New York: Russel Sage Foundation, 1967) p. 120.

[20] Ibid., p. 121.

[21] George F. Kneller, Introduction to the Philosophy of Education (New York: John Wiley & Sons, Inc., 1964), p. 51.

[22] John Dewey "Democracy and Education", Selected Readings in the Philosophy of Education, ed. Joe Park (3d ed.; London: The Macmillian Company, 1968), p. 84.

[23] Project 2000, "Basic Principles for Agriculture and Agribusiness Education in Iowa" (Ames, Iowa: Iowa State University, 1976), p. 5.

[24] Ibid., p. 5.

[25] Tyler, op. cit., p. 44.

[26] Ibid., p. 64.

[27] Ibid., p. 44.

[28] Ibid., p. 46.

[29] Robert F. Mager, Preparing Instructional Objectives (Belmont, California: Fearon Publishers, 1962), p. 11.

[30] Iowa State University, "Strategies for Revision of Curriculum and Program Restructuring of Vocational Agriculture in Iowa", Application for Federal Assistance, Federal Catalog Number 13.498 (Ames, Iowa: Iowa State University, 1974), p. 8. (Mimeographed.)

[31] Ibid., p. 16.